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BUREAU OF
JUL 25 193
AGRICULTURAL ECONOMICS

Directory of Activities of the Bureau of Plant Industry

Miscellaneous Publication
No. 238

United States
Department of Agriculture
Bureau of Plant Industry

ORGANIZATION

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DIVISIONS

Cereal Crops and Diseases.—M. A. McCall, *Principal Agronomist, in charge.*
Cotton and Other Fiber Crops and Diseases.—H. W. Barre, *Principal Pathologist, in charge.*
Drug and Related Plants.—W. W. Stockberger, *Principal Physiologist, in charge.*
Dry Land Agriculture.—C. E. Leighty, *Principal Agronomist, in charge.*
Forage Crops and Diseases.—P. V. Cardon, *Principal Agronomist, in charge.*
Forest Pathology.—Haven Metcalf, *Principal Pathologist, in charge.*
Fruit and Vegetable Crops and Diseases.—E. C. Auchter, *Principal Horticulturist, in charge.*
Mycology and Disease Survey.—H. A. Edson, *Principal Pathologist, in charge.*
Nematology.—G. Steiner, *Principal Nematologist, in charge.*
Plant Exploration and Introduction.—B. Y. Morrison, *Principal Horticulturist, in charge.*
Seed Investigations.—Edgar Brown, *Principal Botanist, in charge.*
Soil Fertility Investigations.—Oswald Schreiner, *Principal Biochemist, in charge.*
Soil Microbiology.—Charles Thom, *Principal Mycologist, in charge.*
Sugar Plant Investigations.—E. W. Brandes, *Principal Pathologist, in charge.*
Tobacco and Plant Nutrition.—W. W. Garner, *Principal Physiologist, in charge.*
Western Irrigation Agriculture.—C. S. Scofield, *Principal Agriculturist, in charge.*

United States Department of Agriculture
Bureau of Plant Industry

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Directory of Activities of the Bureau of Plant Industry

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SCOPE OF ACTIVITIES

The activities of the Bureau of Plant Industry are devoted to plant research and related problems. They include experiments in the improvement of plants so as to increase their yield, quality, and resistance to diseases and insect pests, together with fundamental research on the laws of inheritance looking to the establishment of the soundest procedures in plant breeding; the introduction and testing of promising seeds and plants from foreign countries; investigations of the methods of cultivation and allied operations, such as spraying to protect from important diseases, making for economical and profitable production of field, fruit, vegetable, and ornamental plants, together with studies of the physiology, morphology, and cytology necessary to an adequate understanding of the relation between environment and cultivation on the one hand and yield and quality on the other; fundamental studies of the relation of the crops to the soil, including materials and methods making for successful fertilizer practice and the function of micro-organisms in soil fertility and crop production; investigations seeking to establish the best methods of storing plant products in warehouse or during transportation in order to insure maximum final quality and minimum loss and expense during storage and marketing. The regulatory activities of the Bureau are limited to the enforcement of the Federal Seed Act and the control of quality of plant and soil inoculants.

The development of the National Arboretum (established under the act of Mar. 4, 1927) was directly assigned to the Bureau by the Congress.

The results of the researches of the Bureau are made effective through technical bulletins, circulars, farmers' bulletins, leaflets, yearbook papers, press releases, and special mimeographed circulars. The practical findings of the Bureau are brought directly to farmers, fruit growers, and others through close cooperation with the State experiment stations and the Federal Extension Service.

The administrative and directive activities of the Bureau, as well as certain laboratory investigations, are conducted in Washington. By far the major part of the Bureau's research in laboratory, in greenhouse, and in plots, however, is conducted outside of Washington and comprises what may be designated the field activities of the Bureau. These may be grouped: (1) Those carried on in various parts of the country on land and with facilities owned by the Government and used and controlled by the Bureau, (2) those conducted on land rented by the Bureau, and (3) those carried on where land and other facilities are provided as part of a joint cooperative undertaking. These last are conducted, for the most part, in cooperation with the State agricultural experiment stations.

Practically every major project of the Bureau has its ramifications in one or more of the three groups of field activities. In fact, it is safe to say that fully 75 percent of all the investigative work is located in the field, as distinguished from that carried on in the laboratories in Washington.

ADMINISTRATION

CHIEF OF BUREAU, F. D. RICHEY, Room 207-W, Administration Building, United States Department of Agriculture, Washington, D. C. Telephone, District 6350, extension 4463

ASSISTANT CHIEF OF BUREAU, E. C. AUCHTER, Room 4087, South Building. Telephone, District 6350, extension 4467

ASSISTANT CHIEF OF BUREAU, M. A. McCALL, Room 5078, South Building. Telephone, District 6350, extension 2923

BUSINESS MANAGER OF BUREAU, H. E. ALLANSON, Room 202-W, Administration Building. Telephone, District 6350, extension 4465

The Office of the Chief of Bureau exercises general supervision and control over the work of the Divisions, formulates general policies, and makes decisions as to the trend of research and the conduct of fiscal affairs so as to coordinate the activities of the Bureau and keep them in conformity with existing statutes and governmental regulations. Cooperation between the various Divisions is promoted to the end of securing a maximum of efficiency commensurate with the freedom of action necessary to successful research. General policies affecting relations with other Bureaus of the Department, with other Departments of the Federal Service, and with the State agricultural agencies are developed and made effective.

The Office of the Chief of Bureau is responsible for the business contacts and operations of the Bureau, including: The preparation of the budget and estimates, the allotment of funds, and the approval, audit, and maintenance of expenditure records; the appointment of employees and the maintenance of records of all personnel transactions; the purchase of property, supplies, and equipment; and the maintenance of property records; the handling of claims for injury to Federal employees and damage to private or Government property; the preparation of leases; the supervision of cooperative arrangements; the supervision of the business practices of the Bureau's field stations, and coordination of various field business activities with each other and with the Washington service; and the maintenance of files and handling of mails.

The Library maintains a comprehensive card catalog of the literature of plant science; prepares bibliographical lists on subjects related to Bureau work; cooperates with the Main Library of the Department, by assisting with reference work and book circulation for the Bureau and handling the periodical circulation, and by advising as to classification of botanical books and recommending such books for purchase. It also prepares and issues weekly, for use of the scientific staff, the mimeographed list, Plant Science Literature, compiled from current publications received in the Department. JESSIE M. ALLEN, assistant librarian, in charge.

The Office of Publications is responsible for the editing of the scientific, technical, and popular manuscripts of the Bureau and the reviewing and compiling of other material for publication; the reading of proof; the maintaining of the Bureau's mailing lists; and the filling of requests for publications and information. It is also responsible for the Bureau's job printing and binding. J. M. PICKENS, editor, in charge.

The Arlington Experiment Farm, across the Potomac River from Washington, is operated as a service unit for the Bureau as a whole. Its functions are to develop, operate, and maintain the station, furnish facilities common to the needs of the Divisions of the Bureau and of the other Bureaus of the Department conducting research thereon, and render assistance in this work. It assigns the land; provides agricultural implements, horses, and equipment; maintains a labor force for assignment to research projects and in large part supervises this labor; maintains the station grounds and supervises the erection and maintenance of greenhouses, laboratories, and other buildings; directs and maintains a watch force; operates and maintains heating, electrical, water, sewer, drainage, gas, telephone, and road systems; operates a truck and bus service between Washington and the station; maintains a stock of materials and supplies for issue to the Divisions and other Bureaus; maintains accounts of services rendered and supplies and materials furnished; and in innumerable ways participates in the research being conducted at the station. E. C. Butterfield, senior horticulturist and superintendent, in charge.

The Experimental Greenhouses are responsible for the maintenance of the greenhouses on the Department grounds; supplying facilities for plant research by the Bureau staff; propagating plants; providing ornamental and flowering plants for the patio of the Administration Building and adjacent grounds; and providing general horticultural care of the grounds. Thirty-two greenhouses are maintained for experimental work with a wide range of plants, both economic and ornamental. The annual amaryllis and chrysanthemum exhibits held each year are features of special interest and attract a large number of visitors, not only from Washington but from nearby States. The breeding work with floral plants has resulted in some fine new varieties, the majority of which have been disseminated to commercial growers. J. W. Byrnes, assistant in charge.

CEREAL CROPS AND DISEASES

Room 5078, South Building. Telephone, District 6350, extension 2923

The Division of Cereal Crops and Diseases is responsible for research on the production and improvement of the cereal crops, corn, wheat, oats, barley, rice, sorghums, and rye, and also seed flax. This research includes studies on seedbed preparation; dates, rates, depths, and manner of seeding; cultivation; fertilizers; rotations; harvesting; storage; diseases and their control; breeding and improvement; and the basic laws of cereal crop physiology, genetics, biophysics, pathology, etc., which are the necessary basis for breeding and improving cereal crops and for adjusting methods of production so as to obtain maximum yield and quality. The primary object of this research is to stabilize cereal crop production and quality by removing hazards such as the disastrous effects of disease and susceptibility to drought, heat, cold, etc., and to reduce production costs. M. A. McCall, principal agronomist, in charge.

COTTON AND OTHER FIBER CROPS AND DISEASES

Room 107-W, Administration Building. Telephone, District 6350, extension 2480

The Division of Cotton and Other Fiber Crops and Diseases has charge of research on cotton and other fiber crops, including investigation of their diseases and methods of control. The activities comprise investigation of cultural practices for growing cotton; studies of the botanical and morphological characters of cotton and other fiber plants, genetic, physiological, and ecological researches; breeding superior varieties of cotton, including Egyptian and Sea Island; study of the effect of soil, climate, and other factors on yield, quality, and value of cotton fiber; study of chemical, physical, and other properties of cotton fibers which determine values for specified uses, and the measurement of these properties; investigation of cotton diseases and their control, including breeding for disease resistance; utilization and maintenance of superior strains of cotton through the organization of single-variety communities; and the investigation of hemp and flax fiber production, and of hard fibers and other fibers used for ropes, twines, etc. These activities are conducted in cooperation with other divisions of this Bureau, the Bureaus of Agricultural Economics, Agricultural Engineering, Entomology and Plant Quarantine, and Chemistry and Soils, and with the

State agricultural experiment stations and Extension Services, and with certain counties and group organizations. H. W. BARRE, principal pathologist, in charge.

DRUG AND RELATED PLANTS

Room 348-W, Administration Building. Telephone, District 6350, extension 2482

The Division of Drug and Related Plants investigates the possibilities as domestic crops of plants yielding drugs, poisons, essential and fixed oils, spices, insecticides, and related products for supplies of which domestic industries are dependent on foreign sources. Their cultural requirements are studied and the effect of various production factors on the yield and quality of their products determined. Laboratory investigations are made of plants from the standpoint of their possible usefulness for commercial purposes. Investigations are also made of various special problems of the hop industry affecting the quality of American hops, and the nature, dissemination, and control of the important diseases of that crop in this country. W. W. STOCKBERGER, principal physiologist, in charge.

DRY LAND AGRICULTURE

Room 244-W, Administration Building. Telephone, District 6350, extension 2485

The Division of Dry Land Agriculture investigates the limitations, possibilities, and best methods of agricultural development of the semiarid Great Plains and the semiarid sections of the intermountain areas, outside of irrigated lands. Experiments are conducted at field stations to determine the agricultural effectiveness of each of the many different methods of tillage and crop rotations that can be considered more or less suitable for this region, and their efficiency in the conservation and utilization of the limited water supply available, and the kinds of crops adapted to semiarid conditions. Trees suitable for shelterbelts are grown, tested, and distributed to cooperating farmers in the northern and southern Great Plains. Pasture conservation and development are subjects of investigations at selected stations. Meteorological records are kept, and soil-moisture studies are maintained. C. E. LEIGHTY, principal agronomist, in charge.

FORAGE CROPS AND DISEASES

Room 5951, South Building. Telephone, District 6350, extension 2912

The Division of Forage Crops and Diseases is concerned with the study of all plants used as forage whether as hay, silage, or pasture, and also cover crops and green-manure crops. The activities include the agronomic phases of crop production, such as varietal studies, cultural requirements, grazing problems, and hay and seed production. It is also concerned with the study of diseases of forage plants, utilization, improvement by selection and breeding, and plot technique. Field experiments are conducted in many States, mainly in cooperation with State agricultural experiment stations. P. V. CARDON, principal agronomist, in charge.

FOREST PATHOLOGY

Room 6638, South Building. Telephone, District 6350, extension 4483

The Division of Forest Pathology is charged with the investigation of diseases injuring forest, shade, and ornamental trees and crude and finished forest products. There are more than 180 commercial forest species in the continental United States, and many kinds of shade and ornamental trees. In the nursery and through the long life of these trees, which may be hundreds of years, they are exposed to many organisms that may kill them, reduce their growth rates, or destroy their commercial value by decaying them before or after they are used in buildings or in manufactured articles. Native diseases as well as those introduced from foreign countries, such as chestnut blight, Dutch elm disease, white-pine blister rust, and larch canker, are being investigated. Branch offices are located at nine different places. The Division cooperates closely with the Forest Service, the National Park Service, to which it acts as technical adviser on disease-control projects, and the Bureau of Entomology and Plant Quarantine, for which it conducts the research basic for its forest- and shade-tree disease-eradication programs. Haven Metcalf, principal pathologist, in charge.

FRUIT AND VEGETABLE CROPS AND DISEASES

Room 4087, South Building. Telephone, District 6350, extension 4467

The activities of the Division of Fruit and Vegetable Crops and Diseases are concerned with investigations of fruits, nuts, vegetables, including the potato, and floricultural and other ornamental horticultural crops. These investigations include studies of cultural methods and practices and their relation to regularity of crop production and quality of product; studies of varieties, their adaptability to diverse conditions and uses; breeding, to obtain new varieties of greater merit for different purposes and to extend the range of adaptability; the standardization of varieties, particularly of vegetables; and the diseases of these crops and their control. They also include nursery stock and shelterbelt investigations; research in methods of handling, transportation, storage, and market diseases of fruits, vegetables, and flowers; and the determination of the suitability and relative merit of different fruit and vegetable varieties for utilization in different ways, as well as the effects of diverse cultural and handling treatments, in relation to the quality of the product. E. C. Auchter, principal horticulturist, in charge.

MYCOLOGY AND DISEASE SURVEY

Room 250-W, Administration Building. Telephone, District 6350, extension 2534

The work of the Division of Mycology and Disease Survey involves the collection of current information on the distribution and prevalence of plant diseases in the United States and the losses caused by them; the distribution of this information through a semimonthly periodical to plant pathologists and others concerned; the maintenance of permanent files for this information and host and fungus indexes of the plant pathological literature; the identification of fungi for Federal and State workers, as well as the general public, including forms causing plant and animal diseases, and edible and poisonous types; the maintenance of a fungus herbarium (now one of the largest in the country); the carrying on of a fungus exchange service; the improvement in cultural practices and sanitary procedure in mushroom houses; the study of mushroom diseases; and the development of new noncompetitive mushroom industries. H. A. Edson, principal pathologist, in charge.

NEMATOLOGY

Room 449-W, Administration Building. Telephone, District 6350, extension 2538

The Division of Nematology conducts investigations on nematodes or eelworms parasitizing plants and associated with plant diseases, and the improvement and development of control measures for these pests. It also conducts research on nematodes living free in the soil or elsewhere, and those attacking insects and other invertebrates, especially those which parasitize and destroy insect and similar agricultural pests. It handles routine inquiries, specimen examinations and determinations, regulatory matters, and any related problem concerning all nematodes except those parasitizing man and vertebrate animals. G. STEINER, principal nematologist, in charge.

PLANT EXPLORATION AND INTRODUCTION

Room 6078, South Building. Telephone, District 6350, extension 2733

The Division of Plant Exploration and Introduction serves as a coordinating agency for obtaining from all parts of the world new, rare, and promising plants that may be useful in the development of new crop industries directly, for the diversification or expansion of economic needs, or as material to be used by plant breeders, especially as related to the development of disease-and-insect-resistant crops. It provides initial protection against the introduction of foreign insects and diseases and conducts preliminary propagation and tests at four widely separated field stations. It cooperates with crop specialists in the United States Department of Agriculture, State agricultural colleges and experiment stations, botanic gardens, arboreta, nurserymen, and with selected lists of private, specially qualified individuals. It conducts studies of potential crop plants and of soils and climates of foreign countries as compared to this country with a view to obtaining materials for introduction most adapted to the needs of this country. It names all wild and cultivated flowering plants sent to the Department of Agriculture for identification, and makes studies on the improvement of wild plants, particularly the blueberry. It conducts experiments for the introduction into cultivation of foreign and native plants of potential value in the production of rubber, making selections and establishing high-yielding strains and clones of those adapted to this country. It is charged with the development of the National Arboretum. B. Y. MORRISON, principal horticulturist, in charge.

SEED INVESTIGATIONS

Room 116-W, Administration Building. Telephone, District 6350, extension 2539

The Division of Seed Investigations is concerned with seed testing and the enforcement of the Federal Seed Act. An advisory service is maintained for the identification and the determination of the mechanical purity and germination of seeds. Research is conducted to extend the number of identifications which it is possible to make from an examination of seeds, and to discover methods of ascertaining accurate percentages of germination of those seeds presenting difficulties in testing. The acceptability of the imported seed subject to the Federal Seed Act is determined, records are kept of forage-plant seeds imported into the country, and data on the interstate shipment of fraudulently misbranded seed is considered for the purpose of determining the most appropriate and effective means of improving the quality of seed in commerce. Edgar Brown, principal botanist, in charge.

SOIL FERTILITY INVESTIGATIONS

Room 3949, South Building. Telephone, District 6350, extension 4435

The Division of Soil Fertility Investigations investigates factors pertaining to the maintenance of soil fertility and economical crop production. The investigational work includes studies on the causes of soil infertility; the economical maintenance of soil fertility; effects of soil composition, cultural methods, fertilizer treatment, uncommon elements, and soil amendments on yield and quality of crops; and the properties, composition, formation, and transformation of soil organic matter. Field experimental work, with coordinated laboratory and greenhouse studies, is being conducted on prominent soil types to determine the plant-food requirements of important crops and what constitutes economical utilization of fertilizers. The Division also conducts studies to determine the influence of the different fertilizer elements on the growth, maturity, yield, quality, and disease resistance of crop plants; and biochemical soil and fertilizer studies on the relation of organic matter, green manure, and crop residues to soil fertility and humus formation. Oswald Schreiner, principal biochemist, in charge.

SOIL MICROBIOLOGY

Room 3610, South Building. Telephone, District 6350, extension 2356

The Division of Soil Microbiology is charged with investigations on legume nodule bacteria which are carried on in laboratory, greenhouse, and field. A collection of pure cultures is maintained for distribution to other research workers. Commercial inoculants are purchased on the open market and tested. The results obtained from unsatisfactory inoculants are published. Studies of the microflora of the soil include work on the distribution of *Azotobacter* and its usefulness for determining soil mineral deficiencies; on the isolation, cultivation, and physiology of nitrifiers, cellulose fermenters, and other special groups; on the effect of soil treatment and crop growth upon the microflora; on the presence and activity of slime molds; and on the fungi of the soil, especially those decomposing arsenicals. Other fungi, some pathogenic for man or animals, have been studied in collaboration with other workers. Charles Thom, principal mycologist, in charge.

SUGAR PLANT INVESTIGATIONS

Room 304-W, Administration Building. Telephone, District 6350, extension 2547

The Division of Sugar Plant Investigations conducts investigations on sugar beets and sugarcane, including control of diseases and fundamental research on the nature of causal organisms and the manner in which they are transmitted; breeding, development, and the introduction of improved disease-resistant varieties, and research on genetics and on breeding technique; botanical research and classification of varieties; the testing of new varieties and the study and improvement of cultural operations and field practices; and the physiological research and development of means for reducing deterioration of sugar beets and sugarcane during transportation and temporary storage. Investigations are conducted to a large extent at field stations advantageously located in various States in which these crops are grown. E. W. **Brandes**, principal pathologist, in charge.

TOBACCO AND PLANT NUTRITION

Room 427-W, Administration Building. Telephone, District 6350, extension 2553

The Division of Tobacco and Plant Nutrition conducts tobacco investigations, including substantially all phases of growing, curing, and handling tobacco, with the exception of tobacco insects and their control, and tobacco marketing. The work consists of studies on tobacco diseases and their control; laboratory research on causes of poor quality in leaf tobacco; and field investigations in the improvement of tobacco varieties and methods of fertilization, growing, curing, and handling the different types of leaf, as each distinctive type of tobacco presents special cultural problems. Development by breeding of milder types of leaf having a reduced content of nicotine is a feature of the work, as are also the development of high-nicotine tobaccos for use as raw material in the production of insecticides and the determination of the best cultural methods for maximum production of nicotine. The primary aims are to increase the average quality of the tobacco produced and to reduce the hazards and heavy losses encountered in culture of the crop.

The Division also conducts plant-nutrition investigations which deal with the effects of crops on succeeding crops in the rotation, including relative plant-food requirements of the crops grown in succession. These investigations also include the determination of the elements which are essential to normal growth of plants and their functions, with special reference to those elements required only in small quantities; and the effects of radiation, including length of day, on plant growth and development. W. W. GARNER, principal physiologist, in charge.

WESTERN IRRIGATION AGRICULTURE

Room 149–W, Administration Building. Telephone, District 6350, extension 2555

The activities of the Division of Western Irrigation Agriculture are devoted to the investigation of the problems of crop production on the irrigated lands of the western United States. The object of these investigations is to determine by field studies and experiments the crop rotations, cultural practices, and irrigation methods best suited to a permanently successful agriculture in the arid regions on Federal reclamation projects and adjacent regions. An important phase of the investigational work of the Division has to do with the quality of irrigation and drainage water in relation to the sustained productivity of irrigated lands. This includes investigations of injury to orchard crops by boron in irrigation supplies. Headquarters for these investigations are in Washington, but practically all of the operations are carried on at six field stations maintained on Federal reclamation projects and at one field laboratory located at Riverside, Calif. C. S. SCOFIELD, principal agriculturist, in charge.

FIELD ACTIVITIES

The field stations of the Bureau of Plant Industry are shown in bold-faced type, and the other activities of the Bureau in field and laboratory, frequently in cooperation with a State, appear in italic. Italics are also used to designate Divisions or projects of the Bureau under which certain lines of work at stations are conducted. The locations are shown on the map, figure 1 (following p. 130).

ALABAMA

Auburn

Agricultural Experiment Station, Alabama Polytechnic Institute (cooperative investigations).—About one-half mile from bus station and three-fourths mile from railroad station (Western Railway of Alabama). Transportation arrangement should be made in advance with J. B. DICK or D. G. STURKIE.

Cotton and Other Fiber Crops and Diseases.—Investigations in cotton breeding, genetics, and improvement. J. B. DICK, associate agronomist, in charge.

Investigations in cotton plant physiology. D. G. STURKIE, agent, in charge.

Fairhope

Gulf Coast Substation, State Agricultural Experiment Station (cooperative investigations).—About 2 miles from Fairhope and 25 miles from Mobile (Louisville & Nashville R. R. and Southern Ry.; bus from Mobile to Fairhope). Visitors will be met at Fairhope by automobile from substation. Communicate with H. F. Yates regarding transportation.

Fruit and Vegetable Crops and Diseases.—Tests of early-ripening and hardy varieties of the Satsuma orange; cultural methods and stock studies. Directed by H. P. TRAUB, senior horticulturist, Orlando, Fla.; local supervision by H. F. YATES, agent.

ARIZONA

Sacaton

United States Field Station.—On Pima Indian Reservation, 15 miles north of Casa Grande, 5 miles west of Oldberg, and 20 miles south of Chandler. May be reached by bus from Phoenix. Transportation arrangements should be made in advance with C. J. King, superintendent. Telegraph address, Casa Grande; mail address, Sacaton. Telephone, Sacaton 2 (listed as Indian Service; ask for Department of Agriculture).

Cereal Crops and Diseases.—Experiments with introduced wheat, barley, oats, and sorghums to determine varietal identity, spring and winter habit, and freedom from destructive diseases; varietal comparisons of barley in the nursery, and genetic studies on fundamental problems of inheritance in barley. Quarantine station for new introductions. Directed from Washington, D. C.; local supervision by C. J. KING, senior agronomist and superintendent.

Investigations in maize-breeding methods. Directed from Washington, D. C.; local supervision by C. J. KING, senior agronomist and superintendent.

Cotton and Other Fiber Crops and Diseases.—Investigations on cotton culture, breeding and improvement, genetics, botany, morphology, and ginning; also on cotton disease control and in promoting the farm use of improved seed stocks. C. J. KING, senior agronomist and superintendent, in charge.

Fruit and Vegetable Crops and Diseases.—Field tests of date palms, with special reference to determining varieties best adapted to prove commercially successful in Arizona; incidental tests also made of pistache nut and citrus fruits. Directed by K. A. RYERSON, principal horticulturist, Riverside, Calif.; local supervision by C. J. KING, senior agronomist and superintendent.

Tucson

State Agricultural Experiment Station (cooperative investigations).—One and one-half miles from Southern Pacific Railroad station; 4 miles northwest of post office. May be reached by bus. Telephone, 3030 (listed as University of Arizona).

Cereal Crops and Diseases.—Investigations on culture and improvement of cereals, particularly wheat, barley, oats, and sorghums. A. T. BARTEL, assistant agronomist, in charge.

Drug and Related Plants.—Test plantings of pyrethrum to determine the possibilities of this plant as a commercial crop. Directed from Washington, D. C.; local supervision by A. F. KINNISON, of the experiment station.

Plant Exploration and Introduction.—Selection and breeding of *Ephedra* species. Directed from Washington, D. C.; local supervision by F. J. CRIDER, of Soil Conservation Service.

ARKANSAS

Fayetteville

State Agricultural Experiment Station (cooperative investigations).—Within walking distance from the St. Louis-San Francisco Railway station. It is visible on the heights above the station. Telephone, 1360.

Cereal Crops and Diseases.—Research on diseases of rice, including stem rot, straighthead, leaf spots, and seedling diseases. E. C. TULLIS, pathologist, in charge. Room 225, Agricultural Building.

Cotton and Other Fiber Crops and Diseases.—Investigations in cotton breeding, genetics, and improvement. L. S. BENNETT, associate geneticist, in charge.

Investigations in cotton plant physiology. W. S. THARP, Jr., associate physiologist, in charge.

Fruit and Vegetable Crops and Diseases.—Investigations on peach and cherry bacterial spot, peach brown rot and scab, apple leaf spots and apple blotch; also new fungicides for the control of fruit diseases. J. C. DUNEGAN, associate pathologist, in charge. Room 225, Agricultural Building.

Stuttgart

Rice Branch Experiment Station, State Agricultural Experiment Station (cooperative investigations).—One mile south and eight miles east of Stuttgart (Chicago, Rock Island & Pacific and St. Louis Southwestern Rys.). Telephone regarding transportation to station.

Cereal Crops and Diseases.—Rice investigations, including varietal, breeding, and cultural experiments, and rice diseases (the latter being the field phases of the studies recorded under Fayetteville); varietal and breeding experiments with winter oats. C. R. ADAIR, junior agronomist, in charge. Telephone, 9509 F–11.

CALIFORNIA

Bard

United States Yuma Field Station.—Eight miles northeast of Yuma, Ariz., railroad station (Southern Pacific). Visitors will be met at Yuma by automobile. Telephone, 221 (listed as U. S. Reclamation Bureau; ask for United States experiment station).

Cotton and Other Fiber Crops and Diseases.—Egyptian cotton breeding investigations. Directed from Sacaton, Ariz.; local supervision by E. G. Noble, associate agronomist and superintendent.

Western Irrigation Agriculture.—Rotation and tillage experiments, with cotton featured as the most important crop; varietal tests of alfalfa, sorghums, cotton, barley, wheat, and truck crops; testing and propagating of various ornamental trees and shrubs for distribution; breeding and selection of cotton and alfalfa; investigations in water requirements of sandy soils and the quality and fluctuation of subsoil water (cooperation with Bureau of Agricultural Engineering). E. G. Noble, associate agronomist and superintendent, in charge.

Berkeley

State Agricultural Experiment Station (cooperative investigations).—In eastern part of Berkeley. May be reached by streetcar from Southern Pacific Railroad station. Berkeley may also be reached by ferry and streetcar from San Francisco.

Cereal Crops and Diseases.—Investigation of the cytology of infection of wheat by rusts. Ruth F. Allen, pathologist, in charge.

Biggs

Biggs Rice Field Station (cooperation with State Agricultural Experiment Station and Sacramento Valley Grain Association).—Four miles northwest of Biggs (Southern Pacific R. R.). Transportation arrangements may be made by communicating with L. L. Davis. Telephone, 12–F–11.

Cereal Crops and Diseases.—Rice investigations, including varietal, breeding, cultural, irrigation, and fertilizer experiments. L. L. Davis, assistant agronomist, in charge.

Chico

United States Plant Introduction Garden.—About 1½ miles south and 2 miles east of post office at Chico (Southern Pacific and Sacramento Northern R. Rs.; bus also from Sacramento). Visitors will be met by bus from field station. Telephone, 312–W.

Forest Pathology.—Growing Asiatic chestnuts. Directed from Washington, D. C.; local supervision by J. C. LONG, assistant horticulturist.

Fruit and Vegetable Crops and Diseases.—Grape investigations, including propagation and studies of varieties, habits of growth, characteristics, merits of fruits, and adaptability. Directed by ELMER SNYDER, pomologist, Fresno; local supervision by J. C. LONG, assistant horticulturist.

Deciduous fruit production investigations; studies in root development. Directed by C. F. KINMAN, pomologist, Sacramento; local supervision by J. C. LONG, assistant horticulturist.

Plant Exploration and Introduction.—Propagation, testing, and distribution of rare and valuable seeds, plants, cuttings, shrubs, vines, etc., from foreign countries and United States possessions. J. C. LONG, assistant horticulturist, in charge.

Davis

University Farm (cooperative investigations).—Davis (Southern Pacific R. R.) may also be reached from Sacramento by busses of the California Transit Co. and the River auto stage. Telephone, 30.

Cereal Crops and Diseases.—Agronomic and disease experiments with wheat, oats, and barley, including varietal comparisons, breeding experiments, and genetic studies. C. A. SUNESON, assistant agronomist, in charge.

Fruit and Vegetable Crops and Diseases.—Almond-breeding investigations. Directed by M. N. WOOD, pomologist, Sacramento.

Studies in connection with vegetable variety type-book work on beets and onions, H. A. JONES, and spinach, G. W. SCOTT, collaborators, in charge.

Deciduous fruit investigations, E. C. HUGHES, agent, in charge.

Soil Fertility Investigations.—Soil-fertility studies, chiefly on the soils of the delta section of California, to increase sugar content and production of sugar beets. R. A. PENDLETON, assistant soil technologist, in charge. In Agronomy Building.

Sugar Plant Investigations.—Pathological and agronomic investigations on sugar beets, chiefly in the delta area. F. G. LARMER, assistant pathologist, in charge. In botany department, Horticultural Building.

Tobacco and Plant Nutrition.—Investigations in breeding and growing tobacco of high nicotine content for use in insecticides. Directed from Washington, D. C.; local supervision by C. A. SUNESON, assistant agronomist.

Fresno

United States Experiment Vineyard.—Four miles southeast of Fresno (Santa Fe and Southern Pacific R. Rs.). Electric railway runs within 1½ miles of vineyard.

Fruit and Vegetable Crops and Diseases.—Grape investigations. ELMER SNYDER, pomologist, in charge. Telephone, 2–5214.

Investigations in fruit and vegetable handling, transportation, and storage, with particular reference to table grapes. W. T. PENTZER, physiologist, in charge.

Investigation of physiological diseases of fruits. W. S. BALLARD, senior pathologist, in charge. Telephone, 2–0731.

Indio

United States Experiment Date Garden.—Two miles west of Southern Pacific Railroad station at Indio. Automobile available to station. Telephone, 2372.

Fruit and Vegetable Crops and Diseases.—Experiments in growing date palms, pollination, investigations on root growth and pruning, and breeding of new varieties. F. A. THACKERY, senior agriculturist, in charge.

Investigations on date handling and storage. W. R. BARGER, associate physiologist, in charge.

Los Angeles

University of California at Los Angeles (cooperative investigations).—405 Hilgard Avenue, about 15 miles from business section of the city. Telephone, Oxford 1071. Call laboratory before making trip.

Fruit and Vegetable Crops and Diseases.—Investigation of diseases of vegetables. H. G. MACMILLAN, senior pathologist, in charge.

Martinez

United States Horticultural Experiments.—On Mission Indian Reservation (Coachella Valley). Martinez is 28 miles from Thermal (Southern Pacific R. R.). Visitors should communicate with the Mission Indian Reservation.

Fruit and Vegetable Crops and Diseases.—Variety collection of date palms to test possibilities of these sorts for commercial culture in Arizona, and to produce fruit to supplement the food supply of the Indians on the reservation (cooperation with Bureau of Indian Affairs). Directed by F. A. THACKERY, senior agriculturist, Indio.

Oakville

United States Experiment Vineyard.—About 13 miles north of Napa and one-half mile south of Oakville (Southern Pacific R. R.).

Fruit and Vegetable Crops and Diseases.—Active grape investigations discontinued. Station maintenance under direction of Elmer Snyder, pomologist, Fresno.

Palo Alto

Leland Stanford Junior University (cooperative investigations).—About 1 mile from Southern Pacific Railroad station at Palo Alto. May be reached by bus (San Francisco to San Jose), or visitors will be met on request.

Fruit and Vegetable Crops and Diseases.—Fruit-breeding investigations, special attention being given to peaches, plums, apricots, and other deciduous fruits. W. F. Wight, botanist, in charge. Box 328, Palo Alto. Telephone, 5053.

Pomona

United States Horticultural Field Laboratory.—In New Post Office Building. Take Pacific Electric from Los Angeles. Telephone, 1748.

Fruit and Vegetable Crops and Diseases.—Investigations in fruit and vegetable handling, transportation, and storage, including studies on precooling and ocean transportation of citrus fruits, and special studies on treatments to control organisms of decay. C. W. Mann, senior pomologist, in charge.

Lemon irrigation investigations. J. R. Furr, assistant horticulturist, in charge.

Riverside

Citrus Experiment Station, State Agricultural Experiment Station (cooperative investigations).—About 2 miles from Riverside (Atchison, Topeka & Santa Fe Ry., and Pacific Electric, Southern Pacific, and Union Pacific R. Rs.). May be reached by bus from Riverside post office. Telephone, 3720.

Fruit and Vegetable Crops and Diseases.—Citrus progeny investigations in connection with fruit improvement through bud selection; citrus variety collection, citrus wild relatives and stock tests; date variety tests. K. A. RYERSON, principal horticulturist, in charge.

Rubidoux Laboratory (cooperation with State Agricultural Experiment Station).—4501 Alvarado Street, a short distance from railroad stations. Telephone, 490 (listed as Western Irrigation Agriculture).

Cotton and Other Fiber Crops and Diseases.—Investigation of the cytology and genetics of cotton and cotton relatives for the purpose of ascertaining the phylogenetic relationships existing within this group and as an aid to practical breeding. J. M. WEBBER, associate cytologist, in charge.

Fruit and Vegetable Crops and Diseases.—Western tomato disease investigations. MICHAEL SHAPOVALOV, senior pathologist, in charge.

Western Irrigation Agriculture.—Field investigations in irrigation agriculture, with special reference to the boron content of irrigation waters and in the soil solution; isolation of sources of contamination of the water supply, and other correctives designed to prevent injury to crop plants by boron in the irrigation water; and testing of plants for resistance to boron injury. F. M. EATON, physiologist, in charge.

United States Horticultural Field Office.—Room 8, Post Office Building, 3580 Seventh Street, near railroad, Pacific Electric, and motorbus depots. Telephone, 599.

Fruit and Vegetable Crops and Diseases.—Investigations in fruit improvement through bud selection; bud-selection work with citrus and deciduous fruit varieties. K. A. RYERSON, principal horticulturist, in charge.

United States Sugar Plant Field Laboratory.—Office located in Girls' High School Building (between Lemon, Lime, 9th, and 10th Sts.).

Sugar Plant Investigations.—Investigation of curly-top disease of sugar beets. Eubanks Carsner, senior pathologist, in charge.

Agronomic investigations on sugar beets in southern California. Charles Price, associate agronomist, in charge.

Sacramento

Cooperative Seed Testing Laboratory.—State Department of Agriculture. Room 10, State Office Building, Tenth and L Streets. May be reached by streetcar. Telephone, Capital 2800, extension 436 (listed as California, State of).

Seed Investigations.—Enforcing provisions of Federal Seed Act in Pacific coast region, and making necessary analyses of seed samples in connection therewith; conducting experiments in harvesting, curing, and storage of California-grown seeds and vitality experiments in germination and with buried seed. W. L. Goss, senior botanist, in charge; Leatha D. Bunting, junior botanist.

United States Horticultural Field Office.—Room 219, Federal Building. Telephone, Main 1638.

Fruit and Vegetable Crops and Diseases.—Investigations in fruit production. C. F. Kinman, pomologist, in charge.

Experiments in nut culture; projects in almond breeding; pollination experiments on nut trees; collection of data relating to nut production in California. M. N. Wood, pomologist, in charge.

San Diego

United States Horticultural Field Station.—On Torrey Road (coast highway between Los Angeles and San Diego), at Torrey Pines, 6 miles north of La Jolla. Station may be reached by automobile from San Diego or by taking regular stage line from San Diego.

Stages from Los Angeles or San Diego will stop at the station entrance to discharge passengers. Transportation arrangements may be made in advance by communicating with L. C. Marshall, Box 218, La Jolla. Telephone, La Jolla 36923.

Cereal Crops and Diseases.—Hybridization and genetic studies with maize and maize relatives. Directed from Washington, D. C.; local supervision by L. C. Marshall, physicist.

Cotton and Other Fiber Crops and Diseases.—Introduction of foreign cottons for use in genetic and breeding investigations. Directed from Washington, D. C.; local supervision by L. C. Marshall, physicist.

Fruit and Vegetable Crops and Diseases.—A propagating and reconditioning station, with special greenhouse facilities for handling citrus plants preparatory to their distribution to cooperative agencies and individuals in California; field tests of avocado pollination. L. C. Marshall, physicist, in charge.

Investigation of diseases of lettuce, melons, celery, and other vegetables, especially breeding of disease-resistant strains, including field trials in Imperial Valley. I. C. Jagger, senior pathologist, in charge.

San Francisco

United States Forest Pathology Field Laboratory.—In Region 5 headquarters of Forest Service, Phelan Building, 760 Market Street. May be reached by streetcar. Telephone, Exbrook 0778.

Forest Pathology.—Investigation of forest- and ornamental-tree diseases; advisory direction of forest-pathology activities for Regions 4 and 5, Forest Service (cooperation with Forest Service). W. W. Wagener, pathologist, in charge.

Advisory direction of forest-pathology activities for National Park Service. E. P. Meinecke, principal pathologist, in charge.

Shafter

United States Cotton Field Station.—Two miles north of Shafter (Atchison, Topeka & Santa Fe) railway station. Visitors will be met by automobile from field station. Telephone, 16.

Cotton and Other Fiber Crops and Diseases.—Investigations in cotton breeding and improvement, genetics, plant physiology, culture, disease control, and ginning; also in promoting farm use of improved seed stocks. G. J. HARRISON, associate agronomist and superintendent, in charge.

Drug and Related Plants.—Test plantings of pyrethrum to determine the possibilities of this plant as a commercial crop. Directed from Washington, D. C.; local supervision by G. J. HARRISON, associate agronomist and superintendent.

Fruit and Vegetable Crops and Diseases.—Grape investigations, principally a study of resistant stocks. Directed from Washington, D. C.; local supervision by ELMER SNYDER, pomologist, Fresno.

Tobacco and Plant Nutrition.—Investigations in breeding and growing tobacco of high nicotine content for use in insecticides. Directed from Washington, D. C.; local supervision by G. J. HARRISON, associate agronomist and superintendent.

CANAL ZONE

Summit

Cooperative Fiber Experiments.—Headquarters at Canal Zone Plant Introduction Gardens of Panama Canal Service.

Cotton and Other Fiber Crops and Diseases.—Propagation and cultural experiments with abacá (Manila hemp). Experimental plantings also located at El Mirante. Directed from Washington, D. C.; local supervision by J. E. Higgins, agronomist with Panama Canal Service.

Cooperative Rubber Experiments.—Headquarters at Canal Zone Plant Introduction Gardens of Panama Canal Service.

Plant Exploration and Introduction.—Propagation and cultural experiments with rubber-producing plants. Directed from Washington, D. C.; local supervision by J. E. Higgins, agronomist with Panama Canal Service.

COLORADO

Akron

United States Dry Land Field Station.—Four miles east of Akron (Chicago, Burlington & Quincy R. R.), on State Highway No. 54 (Golden Belt Highway). May be reached by automobile, or transportation arrangements may be made by communicating with J. F. Brandon, superintendent. Telephone, 86–R–2.

Cereal Crops and Diseases.—Agronomic and disease experiments with wheat, oats, barley, and sorghums, including varietal comparisons, breeding and genetic studies, cultural experiments, and wheat foot rots and smuts. J. J. Curtis, junior agronomist, in charge.

Dry Land Agriculture.—Dry-land crop rotations and production, forestry investigations, and use of sheep with pasture rotations (cooperation with Colorado Agricultural Experiment Station). J. F. Brandon, associate agronomist and superintendent, in charge.

Fort Collins

Sugar Plant Field Experiments (cooperation with State Agricultural Experiment Station).—Office and laboratory at Colorado Agricultural College. May be reached by streetcar. Telephone, 1101. Field operations at Larimer County Hospital grounds, on East Elizabeth Street (1 mile east of college). Telephone, 0113–J4.

Sugar Plant Investigations.—Investigations of sugar-beet diseases, including breeding for disease resistance. J. O. Gaskill, junior pathologist, in charge. In Botany Building.

Agronomic investigations with sugar beets. H. E. Brewbaker, associate agronomist, in charge. In Agronomy Building.

Greeley

Colorado Potato Experiment Station.—About 3½ miles northeast of railroad station at Greeley (Colorado & Southern Ry., and Union Pacific R. R.). Union Pacific motorbus connection between Greeley and La Salle, 4 miles from Greeley. Transportation arrangements may be made by communicating with W. C. Edmundson, superintendent. Telephone, 636.

Fruit and Vegetable Crops and Diseases.—Potato cultural, breeding, and irrigation investigations (cooperation with Colorado State Board of Agriculture and State Agricultural Experiment Station). W. C. Edmundson, horticulturist and superintendent, in charge.

Potato-disease investigations (cooperation with Colorado State Board of Agriculture and State Agricultural Experiment Station). W. P. Raleigh, associate pathologist, in charge.

Investigations of bean and pea diseases and methods for their control; breeding and selection of beans and peas, with special reference to resistance to disease and to improved table quality. W. J. Zaumeyer, associate pathologist, in charge of pathological studies, and ————, in charge of breeding and selection, during growing season.

Rocky Ford

Sugar Plant Field Experiments (cooperation American Crystal Sugar Co.).—Nine blocks northwest of post office at Rocky Ford

(Atchison, Topeka & Santa Fe Ry.), opposite American Crystal Sugar Co. By advance arrangement, visitors will be met by automobile.

Sugar Plant Investigations.—Investigation of sugar-beet diseases, including tests of leaf spot-resistant varieties of sugar beets. H. W. Bockstahler, junior pathologist, in charge.

Agronomic investigations with sugar beets. G. W. Deming, assistant agronomist, in charge.

CONNECTICUT

New Haven

Forest Pathology Field Laboratory (cooperation with Yale University).—Take Whitney Avenue streetcar from railroad station to Edwards Street, and walk one block west. Telephone, 8–6789.

Forest Pathology.—Investigation of forest- and ornamental-tree diseases, and tree surgery (cooperation with Northeastern Forest Experiment Station). R. P. Marshall, associate pathologist, in charge.

Windsor

Tobacco Substation, State Agricultural Experiment Station (cooperative investigations).—One mile west of Windsor (New York, New Haven & Hartford R. R.). May be reached by going west on Bloomfield Avenue to top of Cook Hill, then taking left fork; station is first farm on right. P. J. Anderson, in charge of the substation, may be reached by telephone on 312–5.

Tobacco and Plant Nutrition.—New England cigar binder tobacco investigations; studies of black root rot, brown root rot, and other diseases of tobacco; production of improved, disease-resistant strains of Havana seed. C. V. Kightlinger, agent, in charge. In agronomy department, Massachusetts Agricultural College, Amherst, Mass. Telephone, 126.

FLORIDA

Canal Point

United States Sugar Plant Field Station.—One-half mile north of post office in Canal Point (branch line of Florida East Coast Ry., from Okeechobee City; also bus from West Palm Beach, Evernia and Olive Streets), on Canal Point-Okeechobee City highway. Visitors will be met at West Palm Beach by automobile from station if advance arrangements are made. Telephone R. T. Gibbens (private telephone).

Sugar Plant Investigations.—Investigations in sugarcane breeding; production of improved disease-resistant varieties of cane; agronomic trials of new varieties. Sugarcane-breeding investigations (cooperation with Louisiana Agricultural Experiment Station) directed by G. B. Sartoris, senior pathologist, Washington, D. C.; R. T. Gibbens, assistant agronomist, in charge of station work.

Coconut Grove

United States Plant Introduction Garden.—Thirteen miles south of Miami (Seaboard Air Line Ry., and Florida East Coast Ry.); 4½ miles south of South Miami (Florida East Coast Ry.); and 7 miles south of Coconut Grove (Florida East Coast Ry.). Arrangements for transportation to station should be made in advance. Telegraph via Western Union, U. S. Plant Introduction Garden, Coconut Grove, Fla. No telephone.

Plant Exploration and Introduction.—Propagation, testing, and distribution to experimenters of new plant introductions; acclimatization investigations with rubber and other tropical plants, including laboratory investigations for determination of rubber content of plants. T. B. McClelland, senior horticulturist, in charge.

Eustis

Citrus Field Experiments (*cooperative investigations*).—On estate of F. W. Savage, at end of Center Street, outskirts of Eustis (Atlantic Coast Line R. R.). No telephone.

Fruit and Vegetable Crops and Diseases.—Hybridization of citrus fruits; testing of citrus hybrids; breeding new types of citrus plants to meet special conditions. Directed by H. P. TRAUB, senior horticulturist, Orlando; local supervision by E. M. SAVAGE, assistant plant breeder.

Gainesville

State Agricultural Experiment Station (*cooperative investigations*).—About 1½ miles from railroad stations at Gainesville (Atlantic Coast Line R. R., and Seaboard Air Line Ry.). Telephone, 1000 (listed as University of Florida).

Forage Crops and Diseases.—Investigations of grasses and legumes adapted to the Southeastern States, including methods of pasture management and fertilization; utilization of crotalaria and other acid-tolerant legumes; and the value of cover and green-manure crops. G. E. RITCHEY, associate agronomist, in charge.

Homestead

Subtropical Experiment Station, State Agricultural Experiment Station (*cooperative investigations*).—Northwest of Homestead (Florida East Coast Ry.). Drive west on Moury Street 1 mile to Redland Road, turn north on Redland Road 2 miles to Waldin Drive, then west on Waldin Drive one-fourth mile. Telephone, Subtropical Experiment Station.

Fruit and Vegetable Crops and Diseases.—Studies of disease-resistant varieties of tomatoes. W. M. FIFIELD, collaborator, in local charge.

Lake Alfred

Citrus Experiment Station, State Agricultural Experiment Station (cooperative investigations).—Three miles southwest of Lake Alfred (Atlantic Coast Line R. R.). May be reached by automobile.

Fruit and Vegetable Crops and Diseases.—Investigations in citrus and subtropical fruit production and bud selection. Directed by H. P. TRAUB, senior horticulturist, Orlando.

Soil Fertility Investigations.—Concentrated-fertilizer studies with citrus fruit. Directed by G. M. BAHRT, associate soil technologist, Orlando.

Orlando

United States Horticultural Field Laboratory.—Northwest corner of fairgrounds, near West Amelia and Parramore Streets, 2½ miles from Atlantic Coast Line R. R. station; 1 mile from hotels and post office. Telephone, 3107.

Fruit and Vegetable Crops and Diseases.—Satsuma orange and other subtropical fruit research. H. P. TRAUB, senior horticulturist, in charge.

Investigations in handling, storage, and transportation of fruits and vegetables, especially the coloring of citrus fruits. J. R. WINSTON, senior horticulturist, in charge.

United States Soil Fertility Field Laboratory.—In Insectary Building (Bureau of Entomology and Plant Quarantine), on Parramore Street, between Livingston and Amelia Streets. Bus service available. Telephone, 3106 (listed as Bureau of Entomology, U. S. Department of Agriculture).

Soil Fertility Investigations.—Study of soil-fertility and fertilizer problems in the southeastern citrus- and truck-crops belt. G. M. BAHRT, associate soil technologist, in charge.

GEORGIA

Albany

United States Pecan Field Laboratory.—Office and laboratory, 1503 North Jefferson Street, about 1 mile northwest of Union Station. Visitors will be met at station. Telephone, 327. Field investigations conducted at Philema.

Fruit and Vegetable Crops and Diseases.—Nutculture studies on pecan orchard management; crop-production studies, varietal adaptability; pecan-root-stock investigations; physiological studies of response of pecans to certain orchard practices; pecan disease investigations. Directed by H. L. CRANE, principal horticulturist, Beltsville, Md.; local supervision by M. B. HARDY, assistant pomologist in charge of culture and breeding studies, and J. R. COLE, associate pathologist in charge of pathological work.

United States Soil Fertility Field Laboratory.—1503 North Jefferson Street. Visitors will be met upon request. Telephone, 1271.

Soil Fertility Investigations.—Fertilizer requirements for pecans in the Southeast; influence of soil-fertility factors on pecans and adaptability of soils for this crop; studies of fertilizers and soil types in cotton production; green-manuring studies as a means of improving and maintaining soil fertility. R. D. LEWIS, associate soil technologist, in charge.

Atlanta

Cotton Field Office.—138 Peachtree Circle (home address of Mr. McLendon). May be reached by streetcar.

Cotton and Other Fiber Crops and Diseases.—Promoting farm use of improved cottonseed stocks (cooperation with University System of Georgia). C. A. McLENDON, agronomist, in charge.

Cairo

United States Sugar Plant Field Laboratory.—Office in Post Office Building at Cairo (Atlantic Coast Line R. R.). Field operations are 2½ miles north. May be reached by driving north on Broad Street to fork in road, then taking left road about 2 miles to corrugated-iron sirup mill on left. Visitors will be met at Post Office Building by automobile if advance arrangements are made.

Sugar Plant Investigations.—Studies of sugarcane varieties for sirup production, and methods of cultivation; testing and introduction of improved disease-resistant varieties. B. A. BELCHER, assistant agronomist, in charge.

Experiment

Georgia Experiment Station (coöperative investigations).—Located on edge of Griffin, Ga. (Central of Georgia and Southern Rys.). Within walking distance.

Cereal Crops and Diseases.—Investigations of fall-sown cereals (wheat, oats, barley, and rye), including studies of diseases, varieties, breeding, culture, etc. Directed from Washington, D. C.; local supervision by R. P. BLEDSOE, of the experiment station.

Cotton and Other Fiber Crops and Diseases.—Investigations in cotton breeding and improvement, genetics, and cytogenetics. W. W. BALLARD, chief scientific aide, in charge.

Forage Crops and Diseases.—Investigation of diseases of Austrian peas and legumes. J. L. WEIMER, senior pathologist, in charge.

Soil Fertility Investigations.—Cotton soil and fertilizer studies. Directed by J. J. SKINNER, senior biochemist, Washington, D. C.; local supervision by R. P. BLEDSOE, of the experiment station.

Fort Valley

United States Horticultural Field Laboratory.—On grounds of Hale-Georgia Farms Co., Inc., the entrance to which is about 2 miles east on the Miami Valley Road from the Union Station at Fort Valley (Central of Georgia Ry.). Laboratory is about one-half mile north on the plantation avenue from Miami Valley Road. Visitors will be met by automobile. Telephone, 29.

Fruit and Vegetable Crops and Diseases.—Investigations of phony peach and other diseases of peaches. L. M. Hutchins, senior pathologist, in charge.

Philema

United States Pecan Field Station.—Near railroad station at Philema, which is 15 miles northeast of Albany, on the Georgia Southwestern & Gulf Railroad. Office, 1503 North Jefferson Street, Albany.

Fruit and Vegetable Crops and Diseases.—Nutculture and disease investigations. Directed by H. L. Crane, principal horticulturist, Beltsville, Md.; local supervision by M. B. Hardy, assistant pomologist, in charge of culture investigations, and J. R. Cole, associate pathologist, in charge of disease work.

Savannah

United States Barbour Lathrop Plant Introduction Garden.—Twelve and one-half miles southwest of Savannah (Atlantic Coast Line R. R., and Seaboard Air Line, Southern, and Central of Georgia Rys.), on United States Highway 17. Southeastern Stages and Greyhound and Red Line busses pass the station. Visitors will be met by automobile. Telephone, long distance, Bamboo Garden.

Cotton and Other Fiber Crops and Diseases.—Growing ramie plants for comparison and for a supply of propagating stock for experimental purposes. Directed from Washington, D. C.; local supervision by D. A. Bisset, chief scientific aide.

Forest Pathology.—Growing Asiatic chestnuts. Directed from Washington, D. C.; local supervision by D. A. Bisset, chief scientific aide.

Plant Exploration and Introduction.—Growing and testing of new plant introductions; bamboo investigations; rubber-plant investigations; goldenrod-breeding investigations. D. A. Bisset, chief scientific aide, in charge.

Tifton

Georgia Coastal Plain Experiment Station (cooperative investigations).—About 2 miles northwest of Tifton (Atlanta, Birmingham & Atlantic Ry., and Atlantic Coast Line R. R.), on State Highway No. 7. Continue on highway for 1½ miles, then turn to road on left. Transportation arrangements may be made by calling the station. Telephone, 9.

Cereal Crops and Diseases.—Corn investigations, with special reference to breeding for yield and resistance to damage by insects and diseases. H. S. Garrison, assistant agronomist, in charge.

Drug and Related Plants.—Cultural experiments with devil's-shoestring to determine its commercial possibilities as an insecticide plant. Directed from Washington, D. C.; local supervision by Otis Woodard, of the experiment station.

Forage Crops and Diseases.—Investigations of grasses and legumes adapted to the Southeastern States, including methods of pasture management and fertilization; and the value of cover and green-manure crops. J. L. Stephens, agent, in charge.

Nematology.—Investigations relating to nematode diseases of plants, principally root knot and other nematode pests of the South. A. L. Taylor, junior nematologist, in charge.

Tobacco and Plant Nutrition.—Crop-rotation studies, tobacco fertilizer and varietal tests, improvement of cultural methods. J. M. Carr, agent, in charge.

Tobacco disease investigations. J. G. Gaines, assistant pathologist, in charge.

IDAHO

Aberdeen

Aberdeen Substation, State Agricultural Experiment Station (cooperative investigations).—Three-fourths mile from Union Pacific Railroad station. Transportation arrangements may be made by telephoning substation.

Cereal Crops and Diseases.—Agronomic experiments and genetic, physiological, and chemical studies with cereals under irrigation, particularly barley, oats, and spring wheat. HARLAND STEVENS, assistant agronomist, in charge. Telephone, Y–11.

Forage Crops and Diseases.—Seed production studies with clovers. Directed from Washington, D. C.; local supervision by J. L. TOEVS, collaborator.

Moscow

State Agricultural Experiment Station (cooperative investigations).—About one-half mile from railroad station at Moscow (Great Northern and Northern Pacific Rys., and Oregon-Washington Railroad & Navigation line). Transportation arrangements may be made by telephoning station.

Cereal Crops and Diseases.—Laboratory, field, and greenhouse studies on stripe rust of cereals and grasses and on wheat smut. W. M. BEVER, junior pathologist, in charge. Telephone, 187–R.

Twin Falls

United States Sugar Plant Field Laboratory.—In New Entomology Building, 1 mile north on Blue Lake Boulevard from post office in Twin Falls (Union Pacific R. R.; may also be reached by bus from Minidoka, Pocatello, and Jerome, Idaho, or from Wells, Nev.).

Sugar Plant Investigations.—Ecological investigations of weed hosts in relation to curly top; pathological investigations of curly top of sugar beets. R. L. PIEMEISEL, physiologist, in charge.

Agronomic investigations on sugar-beet production in relation to curly-top disease conducted on nearby farm areas. A. M. **Murphy**, junior pathologist, in charge, under supervision of R. L. **Piemeisel**, physiologist.

ILLINOIS

Bloomington

Cereal Pathology Field Experiments (cooperation with Funk Bros. Seed Co., and State Agricultural Experiment Station).—Office in Post Office Building at Bloomington (Chicago & Alton R. R., and Cleveland, Cincinnati, Chicago & St. Louis Ry.). Telephone, 1336. Experiment fields 10 miles from town. Telephone, 173.

Cereal Crops and Diseases.—Investigations of root, stalk, and ear rots of corn, including studies of infection, soil infestation, and control methods, principally by physical selection of seed ears in the field and on the germinator, by breeding, by seed treatments, and by soil treatments. J. R. **Holbert**, senior agronomist, in charge.

Chicago

United States Market Pathology Laboratory.—Office, 1421 South Solon Street. Take Blue Island streetcar going west, at Clark and Adams Streets, get off at Fifteenth Street, and walk one block east. Telephone, Canal 6353. Laboratory investigations conducted in Room 103, Botany Building, University of Chicago. Take car marked "Cottage Grove" going south, get off at University Avenue, and walk two blocks south. (Cars marked "No. 1" turn at Fifty-fifth Street; others transfer to Fifty-fifth Street). Telephone, Midway 0800, extension 282.

Fruit and Vegetable Crops and Diseases.—Investigations in the handling, transportation, and storage of fruits and vegetables, with particular reference to diseases which cause spoilage during transit and on the market (cooperation with Bureau of Agricultural Economics and University of Chicago). G. B. Ramsey, senior pathologist, in charge.

Urbana

State Agricultural Experiment Station (cooperative investigations).—About 1½ miles from railroad station at Urbana (Cleveland, Cincinnati, Chicago & St. Louis Ry.). May be reached by bus or streetcar from railroad station at either Urbana or Champaign.

Cereal Crops and Diseases.—Effect of various crop rotations and fertilizer treatments on the development of root, stalk, and ear rots of corn grown from treated or untreated seed of different qualities and strains; breeding investigations. W. L. Burlison, C. M. Woodworth, and Benjamin Koehler, of the experiment station, cooperating with J. R. Holbert, senior agronomist, Bloomington.

INDIANA

La Fayette

Agricultural Experiment Station, Purdue University (cooperative investigations).—At West La Fayette, about 1½ miles from La Fayette. May be reached by streetcar from La Fayette.

Cereal Crops and Diseases.—Pathologic, physiologic, and genetic studies with dent and sweet corn, with special emphasis on breeding. J. F. Trost, associate pathologist, in charge. Telephone, 2329.

Research on leaf rusts of wheat, rye, barley, and corn, including determinations of alternate hosts, physiologic forms, and host resistance, and breeding for rust resistance. R. M. Caldwell, associate pathologist, in charge. Telephone, 2187.

Drug and Related Plants.—Test plantings of pyrethrum to determine the possibilities of this plant as a commercial crop. Directed from Washington, D. C.; local supervision by E. R. HONEYWELL, of the experiment station.

Cooperative Seed Testing Laboratory.—On Marstellar Street in Agricultural Experiment Station Annex. Telephone, 3948 (listed as Seed Testing Laboratory, State Chemist Department).

Seed Investigations.—Making tests of agricultural seeds for mechanical purity and germination and similar work, including identification of seeds and plants and making tests of seeds in connection with enforcement of the Federal Seed Act. H. R. KRAYBILL, collaborator, in charge; REGINA B. SCHULTE, assistant botanist.

Vincennes

United States Fruit Disease Field Laboratory.—1237 Fairgrounds Avenue, one block from Union Station at Vincennes (Cleveland, Cincinnati, Chicago & St. Louis Ry., and Baltimore & Ohio, Chicago & Eastern Illinois, and Pennsylvania R. Rs.). Telephone, 1712.

Fruit and Vegetable Crops and Diseases.—Peach, cherry, and apple disease-control experiments. LESLIE PIERCE, principal scientific aide, in charge.

IOWA

Ames

State Agricultural Experiment Station (cooperative investigations).—About 1 mile west of railroad station. May be reached by bus, interurban railway, or streetcar.

Cereal Crops and Diseases.—Breeding spring-oat varieties resistant to diseases. Experiments conducted at agronomy farm, about 2 miles southwest of town. L. C. BURNETT, agent, in charge. In Agricultural Hall.

Extensive corn-breeding and genetic experiments and varietal comparisons. A. A. BRYAN, agronomist, in charge. In Agricultural Hall.

Studies in crown rust of oats in the laboratory, greenhouse, and field. H. C. Murphy, associate pathologist, in charge. In Botany Hall.

Forage Crops and Diseases.—Physiological, adaptation, and agronomic studies of regional strains and varieties of red clover, alfalfa, and soybeans. F. S. Wilkins, agent, in charge. In Agricultural Hall.

Fruit and Vegetable Crops and Diseases.—Potato-breeding and seed-improvement investigations. A. T. Erwin, collaborator, in charge.

KANSAS

Colby

Colby Substation, State Agricultural Experiment Station (cooperative investigations).—One mile west of Colby on main road; adjoining city limits just off United States Highway No. 40. Colby is on the Chicago, Rock Island & Pacific Railway and Union Pacific System. May be reached by automobile, or transportation arrangements may be made by telephoning E. H. Coles, superintendent. Telephone, 131 (listed as Experiment Farm).

Dry Land Agriculture.—Dry-land crop rotations and production. J. B. Kuska, associate agronomist, in charge.

Garden City

Garden City Substation, State Agricultural Experiment Station (cooperative investigations).—Five miles northeast of Garden City (Atchison, Topeka & Santa Fe Ry.), on United States Highway No. 50. May be reached by automobile, or transportation arrangements may be made by telephoning F. A. Wagner, superintendent. Telephone, 32–F–3 (listed as Experiment Farm).

Dry Land Agriculture.—Dry-land crop rotations and production. L. A. Brown, agent, in charge. Telephone, 32–F–11.

Hays

Fort Hays Substation, State Agricultural Experiment Station (cooperative investigations).—About one-half mile south of Hays (Union Pacific R. R.). May be reached by automobile, or transportation arrangements may be made by telephoning L. C. Aicher, superintendent. Telephone, 123 (listed as Fort Hays Experiment Station).

Cereal Crops and Diseases.—Agronomic investigations of wheat, oats, barley, corn, and sorghums, including varietal comparisons; experiments on rates, dates, and methods of seeding; seedbed preparation and rotation studies; special tillage experiments for the prevention of winter-killing. A. F. Swanson, associate agronomist, in charge.

Dry Land Agriculture.—Dry-land crop rotations and production; use of commercial fertilizers and soil-nitrate studies; soil-moisture and protein studies. A. L. Hallsted, associate agronomist, in charge.

Forage Crops and Diseases.—Agronomic investigations of miscellaneous forage crops suitable for dry-land conditions, principally alfalfa, grasses, and sweetclover. D. A. Savage, agronomist, in charge.

Manhattan

State Agricultural Experiment Station (cooperative investigations).—About 2 miles northwest of railroad station, on northwestern limits of city. May be reached by bus.

Cereal Crops and Diseases.—Agronomic investigations of wheat and oats, especially breeding and genetic studies, including experiments in breeding wheat for winter hardiness, early maturity, stiffness of straw, disease resistance, and yield. J. H. Parker, agronomist, in charge. In Waters Hall.

Agronomic investigations of corn, with special emphasis on breeding. A. M. BRUNSON, agronomist, in charge. In Waters Hall.

Research on leaf rust of wheat, including special studies with the different physiologic forms, the relative susceptibility of the various wheat varieties to each of these forms, and the inheritance in wheat of resistance to leaf rust. C. O. JOHNSTON, associate pathologist, in charge. In Dickens Hall.

Research on foot rots of cereals, including extensive greenhouse and field experiments to determine the host range and the relative susceptibility of wheat varieties. HURLEY FELLOWS, associate pathologist, in charge. In Dickens Hall.

Forage Crops and Diseases.—Variety and strain tests of alfalfa, including a study of the causes of alfalfa failure and selection and breeding of wilt-resistant strains. C. O. GRANDFIELD, assistant agronomist, in charge.

KENTUCKY

Lexington

State Agricultural Experiment Station (cooperative investigations).—On the edge of Lexington. May be reached by streetcar or automobile.

Forage Crops and Diseases.—Investigations with red clover, including studies of diseases; selection for disease resistance; breeding and genetic studies. LAWRENCE HENSON, agent, in charge. In agronomy department.

LOUISIANA

Baton Rouge

State Agricultural Experiment Station (cooperative investigations).—Two and one-half miles south of Baton Rouge. May be reached by bus.

Cereal Crops and Diseases.—Agronomic experiments with corn, including varietal comparisons, breeding experiments, and experiments on the relation of husk characters to damage by weevils and corn earworms; investigations of tropical grass mosaic on corn, sugarcane, and other grasses. H. F. STONEBERG, assistant agronomist, in charge.

Cotton and Other Fiber Crops and Diseases.—Cotton disease investigations, with special reference to control methods. D. C. NEAL, senior pathologist, in charge.

Investigations in cotton breeding, genetics, and improvement. J. R. COTTON, associate agronomist, in charge.

Fruit and Vegetable Crops and Diseases.—Seed-potato improvement work. J. C. MILLER, collaborator, in charge. (Field experiments conducted at Houma.)

Crowley

Rice Station, State Agricultural Experiment Station (cooperative investigations).—One mile west of Crowley (Southern Pacific R. R.). Communicate with the superintendent regarding transportation arrangements. Telephone 196.

Cereal Crops and Diseases.—Introduction and comparison of rice varieties from foreign countries; cultural, fertilizer, irrigation, and rotation experiments. J. M. JENKINS, associate agronomist, in charge.

Breeding and hybridization studies with rice. N. E. JODON, assistant agronomist, in charge.

Houma

United States Soil Fertility Field Laboratory.—In mill house on Southdown Plantation on Little Bayou Black at end of Lafayette Street, about 1 mile west of courthouse in Houma. May be reached by bus from 400 North Rampart Street, New Orleans; or by bus from Schriever (Southern Pacific R. R.), about 10 miles from Houma. Telephone, 187–W (listed as U. S. Bureau of Plant Industry).

Soil Fertility Investigations.—Fertilizer requirements of different soils for sugarcane and effect on maturity, yield, and quality of the cane; soil type adaptability. A. M. O'NEAL, associate soil technologist, in charge.

United States Sugar Plant Field Station.—On Southdown Plantation on Little Bayou Black at end of Lafayette Street, about 1 mile west of courthouse in Houma. May be reached by bus from 400 North Rampart Street, New Orleans; or by bus from Schriever (Southern Pacific R. R.), about 10 miles from Houma. Visitors will be met at Houma by automobile from station if advance arrangements are made. Telephone United States Sugar Plant Field Station.

Sugar Plant Investigations.—Investigations of sugarcane diseases. E. V. ABBOTT, associate pathologist, in charge.

Investigations of sugarcane varietal and agronomic problems. GEORGE ARCENEAUX, agronomist, in charge.

Investigations of sugarcane physiology. J. I. LAURITZEN, senior physiologist, Washington, D. C., in charge.

Jeanerette

Iberia Livestock Experiment Station (cooperative investigations).—Four miles west of Jeanerette (Missouri Pacific and Southern Pacific R. Rs.), on the main highway from Jeanerette to New Iberia. May be reached by bus from either place, or visitors will be met by automobile from field station. Telephone, 89–J (listed as Iberia Livestock Experiment Station, U. S. Bureau of Animal Industry).

Forage Crops and Diseases.—Introduction and testing of forage crops; pasture investigations, including grazing experiments and yield studies on small plots; soybean variety tests and breeding (cooperation with Bureau of Animal Industry and Louisiana Agricultural Experiment Station). R. B. Carr, assistant agronomist, in charge.

New Orleans

United States Forest Pathology Field Laboratory.—Located at Southern Forest Experiment Station, Union Building, 837 Gravier Street. Telephone, Raymond 1304 or 1305 (listed as U. S. Forest Service).

Forest Pathology.—Investigation of diseases of trees and forest products (cooperation with Forest Service). P. V. Siggers, associate pathologist, in charge.

Robson

United States Pecan Field Station.—One-fourth mile south of post office at Robson (Texas & Pacific Ry.); 14 miles southeast of Shreveport courthouse, on west side of Louisiana Purchase Highway (Harts Island Road). Office and laboratory, Room 606, Courthouse, Shreveport. Telephone, County 4612.

Fruit and Vegetable Crops and Diseases.—Nutculture investigations. F. N. Dodge, junior pomologist, in charge.

Shreveport

United States Pecan Field Laboratory.—Room 606, Courthouse. Telephone, 2–5023. Field investigations conducted at Robson.

Fruit and Vegetable Crops and Diseases.—Studies on influence of leaf area on fruit setting, size, and filling of nuts; orchard management, cultivation, fertilization, and pruning. B. G. Sitton, associate pomologist, in charge.

Nut-disease investigations. H. E. Parson, assistant pathologist, in charge.

United States Soil Fertility Field Laboratory.—Room 606, Courthouse. Telephone, 2–5023.

Soil Fertility Investigations.—Studies of fertilizer requirements for pecans in the Southwest, influence of soil-fertility factors, and soil adaptability for pecans. A. O. ALBEN, associate soil technologist, in charge.

MAINE

Presque Isle

Aroostook Farm, State Agricultural Experiment Station (cooperative investigations).—One and three-fourths miles south of railroad station at Presque Isle (Bangor & Aroostook R. R., and Canadian Pacific Lines in Maine). Transportation arrangements may be made by telephoning P. M. Lombard at Aroostook Farm, 154–4 or 154–12. (Government office closed from Oct. 15 to Mar. 31.)

Fruit and Vegetable Crops and Diseases.—Cultural investigations of potatoes. P. M. LOMBARD, associate horticulturist, in charge.

Potato-breeding studies. C. F. CLARK, horticulturist, in charge.

Investigations of potato diseases and experiments with control measures. E. S. SCHULTZ, senior pathologist, Beltsville, Md., in charge.

Soil Fertility Investigations.—Potato soil and fertilizer studies on Aroostook Farm and on farms of cooperating potato growers. Directed from Washington, D. C.; local supervision by J. A. CHUCKA, collaborator.

MARYLAND

Beltsville

United States Horticultural Field Station.—About 14 miles northeast of Washington; 1 mile southwest of Beltsville (Baltimore & Ohio R. R.). May be reached from Washington by train, suburban trolley, bus, or automobile on the Washington-Baltimore Boulevard. Telephone, Greenwood 1430.

Fruit and Vegetable Crops and Diseases.—Deciduous-fruit investigations, including production and adaptation, breeding, orchard management and tree nutrition; thinning and pruning and varietal adaptability embracing apples, peaches, plums, pears, grapes, berries, and other deciduous fruits; pathological studies and experiments, in orchard and greenhouse, of various diseases of fruit trees; laboratory, field, and greenhouse investigations of diseases of berries, and preliminary tests to determine the efficacy of chemicals and combinations of chemicals as prospective fungicides. J. R. MAGNESS, principal pomologist, in charge.

Nut-culture investigations, including breeding, disease control, and varietal adaptability of filberts, walnuts, chestnuts, and hickories. H. L. CRANE principal horticulturist, in charge.

Vegetable investigations, including cultural and production studies; investigations of quality, growth, and physiological behavior of vegetable crop plants, principally peas, tomatoes, peppers, peanuts, sweetpotatoes, celery, lettuce, beans, and sweet corn; breeding and selection of tomatoes, eggplant, cucumbers, lettuce, beets, and cabbage for production of disease-resistant varieties; investigations of diseases of tomatoes, eggplant, and cucumbers with respect to nature and control of virus diseases; investigations on diseases of and breeding disease-resistant varieties of peas and beans. V. R. BOSWELL, principal horticulturist, in charge.

Floricultural and horticultural plant investigations, including forcing investigations dealing with bulb crops grown at Beltsville and at other field stations; bulb culture, handling, curing, etc.; naturalization studies of daffodils, tulips, hyacinths, crocuses, etc., and production of lilies in openings in woodland; tests with roses, iris, and chrysanthemums; field and greenhouse experiments in connection with investigations of diseases of florists' and ornamental nursery crops. S. L. EMSWELLER, principal horticulturist, in charge.

Nursery stock investigations, including propagation and storage of fruit trees and ornamental understocks; field and greenhouse experiments on crown gall of apples and other fruits; field investigations of root rots of fruit trees. F. E. GARDNER, senior pomologist, in charge.

Potato investigations, including breeding and culture; investigations of potato diseases. ————————, in charge.

College Park

State Agricultural Experiment Station (cooperative investigations).—Eight miles northeast of Washington, on the Washington-Baltimore Boulevard; also may be reached by streetcar, bus, or automobile from Washington. Telephone, Greenwood 1660 (listed as University of Maryland).

Fruit and Vegetable Crops and Diseases.—Nursery-stock investigations; propagation and rootstock studies. F. E. GARDNER, senior pomologist, Beltsville, in charge.

Apple-stock testing; testing pears for blight resistance. A. L. SCHRADER, collaborator, in charge, in cooperation with F. E. GARDNER, senior pomologist, Beltsville.

Potato-breeding investigations. ————————, agent, in charge.

Glenn Dale

United States Plant Introduction Garden.—Sixteen miles from Washington, D. C. May be reached by Pennsylvania Railroad to Glenn Dale, which is about 2 miles north of the station; or by automobile from Washington via Washington-Baltimore Boulevard to Bladensburg, Md., turning right on the Defense Highway and continuing about 8 miles, taking the first turn to the left after crossing the second bridge on the Defense Highway, and continuing one-half mile north to the station. Visitors will be met at Glenn

Dale. Telephone, Bowie 64–M (listed in Bowie-Laurel directory as U. S. Government, Plant Introduction Garden).

Cereal Crops and Diseases.—Maize-heredity studies. Directed from Washington, D. C.; G. N. COLLINS, principal botanist, in charge.

Drug and Related Plants.—Extensive cultivation of pyrethrum to determine field practices, yield, and insecticidal value of the crop, production costs, etc. A. F. SIEVERS, senior biochemist, in charge.

Forest Pathology.—Chestnut-breeding and chestnut blight investigations. G. F. GRAVATT, senior pathologist, in charge.

Plant Exploration and Introduction.—Propagation, testing, and distribution of rare and valuable seeds, plants, cuttings, shrubs, vines, etc., from foreign countries and United States possessions. ————, associate horticulturist and superintendent, in charge.

Lanham

United States Maize Heredity Experiments.—About 1 mile east of Pennsylvania Railroad station at Lanham, which is about 8 miles from Washington on the Defense Highway.

Cereal Crops and Diseases.—Genetic and cytological studies with maize. Directed from Washington, D. C.; J. H. KEMPTON, botanist, in charge.

Oakland

United States Potato Field Experiments.—One and one-half miles from Oakland (Baltimore & Ohio R. R.), on farm of H. L. Porter. May be reached by automobile from Washington, D. C.

Fruit and Vegetable Crops and Diseases.—Potato-breeding and improvement investigations. Directed by F. J. STEVENSON, senior geneticist, Beltsville.

Potato-disease investigations. Directed by E. S. Schultz, senior pathologist, Beltsville. (Seasonal work only.)

Upper Marlboro

Branch Station, State Agricultural Experiment Station (cooperative investigations).—One-half mile from center of town, on county fairgrounds. Marlboro is on the Pennsylvania Railroad.

Tobacco and Plant Nutrition.—Maryland tobacco investigations, including development of improved strains and varieties of tobacco through breeding and selection; effects of preceding crops on tobacco; effects of water supply on the crop; fertilizer requirements of the Maryland tobacco crop, relation of magnesium, calcium, sulphur, and other elements to the nutrition of the tobacco plant; tobacco diseases and their control. D. E. Brown, chief scientific aide, in charge. (Mr. Brown is at the station from March to October.)

MASSACHUSETTS

Amherst

State Agricultural Experiment Station (cooperative investigations).—About 1 mile north of center of Amherst, and 7 miles from Northampton (local bus line). Telephone, 126.

Fruit and Vegetable Crops and Diseases.—Investigations of cranberry diseases, especially false blossom and fruit rots; also investigations of diseases of strawberries and blueberries. H. F. Bergman, senior pathologist, in charge. (Winter months only.)

Studies in connection with vegetable variety type-book work on onions, turnips, and rutabagas. G. B. Snyder, collaborator, in local charge.

Tobacco and Plant Nutrition.—New England cigar binder tobacco production investigations; laboratory and field study of tobacco diseases and their control; production of improved, disease-resistant strains of Havana seed. C. V. **Kightlinger**, agent, in charge. In agronomy department.

East Wareham

Cranberry Substation, State Agricultural Experiment Station (cooperative investigations).—Mail address, East Wareham; railroad station, Onset (New York, New Haven & Hartford R. R.), 51 miles southeast of Boston. From New York most conveniently reached by Fall River boat and New York, New Haven & Hartford Railroad or by New Bedford boat. Laboratory and bog located about 1 mile from railroad station or post office; go one-half mile north on main road to Agawam garage, where sign directs to State Bog. Telephone, Wareham 112–3.

Fruit and Vegetable Crops and Diseases.—Investigation of cranberry diseases, especially false blossom and fruit rots; also investigation of diseases of strawberries and blueberries. H. F. **Bergman**, senior pathologist, in charge. (Investigations conducted during summer months only; laboratory work at Amherst.)

Nematology.—Investigations relative to a disease of strawberries caused by a bud-infesting nematode. J. R. **Christie**, associate nematologist, Washington, D. C., in charge; local supervision by H. J. **Franklin**, of the experiment station.

Plant Exploration and Introduction.—Testing of blueberry hybrids. H. J. **Franklin**, of the experiment station, in charge.

MICHIGAN

Augusta

W. K. Kellogg Demonstration Farm, State Agricultural Experiment Station (cooperative investigations).—About 8 miles northwest of Augusta (Michigan Central R. R.), which is about 10 miles from Battle Creek. Visitors will be met at Battle Creek by communicating in advance with C. M. McCrary, superintendent, Route 1, Augusta. Telephone, Hickory Corners 22–F–3, W. K. Kellogg Demonstration Farm.

Forage Crops and Diseases.—Pasture investigations, including experiments in pasture management, the renovation of old pastures, and comparison of different pasture plants and different fertilizers. A. B. Dorrance, assistant agronomist, in charge.

East Lansing

State Agricultural Experiment Station (cooperative investigations).—East Lansing is about 3 miles from Lansing. Take intercity bus in Lansing marked "College", going east on Michigan Avenue to end of line. College campus is about two blocks from there.

Fruit and Vegetable Crops and Diseases.—Potato-breeding and seed-improvement investigations. H. C. Moore and E. J. Wheeler, collaborators, in charge. (Field work also conducted at Lake City.)

Sugar Plant Investigations.—Agronomic investigations with sugar beets. J. G. Lill, associate agronomist, in charge. In Agricultural Hall.

Sugar-beet breeding experiments. H. L. Kohls, collaborator, in charge. In Agricultural Hall.

MINNESOTA

St. Paul

State Agricultural Experiment Station (cooperative investigations).—University Farm is about 4 or 5 miles from either Minneapolis or St. Paul. Take streetcar marked "Como-Harriet", get off at Doswell Avenue and walk east one-third mile, or get off at Carter Avenue and walk north one-third mile. Telephone, Nestor 2881.

Cereal Crops and Diseases.—Genetic studies on wheat for rust resistance and winter hardiness. E. R. Ausemus, associate agronomist, in charge. In agronomy and plant genetics department.

Extensive field, greenhouse, and laboratory studies on stem rust of wheat, oats, barley, rye, and related grasses, including life history, hybridization, and genetic studies of the causal organism; investigation of physiologic specialization of stem rust; studies on the morphology and physiology of cereals with reference to their susceptibility to stem rust; and studies on the epidemiology of stem rust, including development of rust in the Southern States and in Mexico, possible movement of spores northward by surface and higher air currents, spread of rust to grains and grasses from infected barberries, the progress of epidemics once started on grains, and the establishment and direction of uniform cooperative rust-differentiating nurseries in the United States and Canada. M. N. Levine, pathologist, in charge. In plant pathology department.

Cereal pathology garden for testing the resistance of different varieties, pure lines, and hybrid strains of cereals to different physiologic forms of the various fungi causing cereal diseases. R. H. Bamberg, agent, in charge.

Drug and Related Plants.—Field tests with safflower as an oilseed crop for the production of drying oils. Directed from Washington, D. C.; local supervision by A. C. Arny, of the experiment station.

Fruit and Vegetable Crops and Diseases.—Potato-breeding and seed-improvement work. F. A. Krantz, collaborator, in charge.

Sugar Plant Investigations.—Agronomic and genetic studies on sugar beets. J. O. Culbertson, assistant agronomist, in charge.

Pathological investigations on sugar-beet root rot and other diseases. E. L. LeClerg, assistant pathologist, in charge.

MISSISSIPPI

Jackson

Cotton Field Office.—Headquarters in offices of Mississippi Cotton Cooperative Association.

Cotton and Other Fiber Crops and Diseases.—Promoting farm use of improved cottonseed stocks (cooperation with Mississippi Agricultural Experiment Station). J. E. HITE, agronomist, in charge.

McNeill

McNeill Station, State Agricultural Experiment Station (cooperative investigations).—About one-half mile from railroad station (Southern Ry.). Transportation arrangements may be made by telephoning the substation.

Forage Crops and Diseases.—Botanical studies of plant population in experimental pastures, studies of plant introductions, methods of producing legumes in combination with southern pasture grasses, and the effect of different inoculants, particularly on cluster clover and hop clover. H. R. REED, assistant agronomist, in charge.

Meridian

United States Horticultural Field Station.—Seven miles northeast of post office, in Meridian (Southern Ry., and Mobile & Ohio R. R.), on Russell-Marion road, midway between the two places, and about 1 mile off the concrete highway. May be reached on United States Highways 85 and 40.

Fruit and Vegetable Crops and Diseases.—Horticultural production investigations, including pecans, strawberries, grapes, sweetpotatoes, asparagus, etc. G. P. HOFFMANN, associate horticulturist, in charge.

United States Sugar Plant Field Laboratory.—On grounds of United States Horticultural Field Station, 7 miles northeast of Meridian post office, on Russell-Marion road, midway between the two places, and about 1 mile off the concrete highway. May be reached on United States Highways 85 and 40.

Sugar Plant Investigations.—Tests of varieties of sugarcane for sirup production. Directed from Washington, D. C.; local supervision by B. A. Belcher, assistant agronomist, Cairo, Ga.

Poplarville

South Mississippi Branch Station, State Agricultural Experiment Station (cooperative investigations).—About one-half mile west of courthouse in Poplarville (Southern Ry.). Visitors will be met at railroad station if advance arrangements are made.

Fruit and Vegetable Crops and Diseases.—Grape-production investigations, including varietal adaptation, rootstock tests, and breeding investigations. S. R. Greer, agent, in local charge.

Sugar Plant Investigations.—Tests of varieties of sugarcane for sirup production. Directed by B. A. Belcher, assistant agronomist, Cairo, Ga.; local supervision by J. C. Robert, of the experiment station.

Stoneville

Delta Branch Station, State Agricultural Experiment Station (cooperative investigations).—Near Stoneville, 1 mile from Leland (Illinois Central R. R.), and 9 miles east of Greenville (Columbus & Greenville Ry., and Illinois Central System). May be reached by automobile from either place. Communicate with W. E. Ayres, assistant director of the station, regarding transportation arrangements.

Forage Crops and Diseases.—Investigations of alfalfa diseases; cultural, fertilizer, and varietal tests of alfalfa. P. R. Henson, assistant agronomist, in charge.

United States Cotton Field Station.—Adjoining the Mississippi Delta Branch Station, 1 mile from Leland and 9 miles east of Greenville. May be reached by automobile from either place. Office at Delta Branch Station. Communicate with W. E. AYRES, assistant director, regarding transportation.

Cotton and Other Fiber Crops and Diseases.—Cotton breeding, culture, and improvement; cotton genetics and cytogenetics; and cotton disease control (cooperation with Mississippi Agricultural Experiment Station). J. W. NEELY, associate geneticist, in charge.

Cotton quality research from the standpoint of production (cooperation with Bureau of Agricultural Engineering and Mississippi Agricultural Experiment Station). J. S. TOWNSEND, technologist, in charge.

West Point

Forage Crop Field Experiments (cooperation with State Agricultural Experiment Station).—Five miles east of West Point (Columbus & Greenville Ry., and Mobile & Ohio R. R.). Visitors will be met by automobile. Telephone, 3202.

Forage Crops and Diseases.—Investigation of alfalfa diseases; cultural, fertilizer, and varietal tests of alfalfa; testing legumes adapted to the South; pasture investigations. T. F. AKERS, assistant agronomist, in charge.

MISSOURI

Columbia

State Agricultural Experiment Station (cooperative investigations).—Within walking distance of the railroad station.

Cereal Crops and Diseases.—Investigations on corn culture, breeding, and genetics, including the effects of X-ray and radium treatments on inheritance. L. J. **Stadler**, senior geneticist, in charge.

Forage Crops and Diseases.—Studies of different systems of grazing, with a pasture survey of Missouri and limited nursery tests and breeding studies with pasture and other forage plants. E. M. **Brown**, agent, in charge. In department of field crops. Telephone, 7421. The grazing studies with pastures are conducted at Sni-A-Bar Ranch, Grain Valley, Mo. (Chicago & Alton R. R.), which may also be reached by bus on Highway No. 40 between Kansas City and St. Louis. Visitors should make advance arrangements for transportation with Mr. Brown or **James Napier**, superintendent of the ranch.

Studies of acid-tolerant legumes; trials of lespedeza and other legumes suited for acid soils in the Ozarks. C. A. **Helm**, collaborator in charge. In department of field crops. Field work on acid-tolerant legumes conducted at Cuba and Green Ridge.

Cooperative Seed Testing Laboratory.—102 Waters Hall, College of Agriculture, University and Mathews Streets. Telephone, 7421 (listed as University, Field Crops Department).

Seed Investigations.—Making tests of agricultural seeds for mechanical purity and germination and similar work, including identification of seeds and plants, and making tests of seeds in connection with enforcement of the Federal Seed Act. W. C. **Etheridge**, collaborator, in charge; **Clara Fuhr**, assistant botanist.

Elsberry

Elsberry Rice Experiment Field (cooperation with State Agricultural Experiment Station).—About 1½ miles south of Chicago, Burlington & Quincy Railroad station. May be reached by automobile.

Cereal Crops and Diseases.—Investigations on rice production, including irrigation, fertilizers, varietal comparisons, methods of seeding, breeding, and selection for improvement, and rotation studies; varietal experiments with wheat, corn, and soybeans. Directed from Washington, D. C.; local supervision by B. M. King, agent, Columbia.

Springfield

United States Fruit Disease Field Laboratory.—In Federal Building. May be reached by streetcar, or visitors will be met at station. Telephone, 1322.

Fruit and Vegetable Crops and Diseases.—Studies in the control of apple, cherry, and peach diseases. M. A. Smith, associate pathologist, in charge.

MONTANA

Bozeman

State Agricultural Experiment Station (cooperative investigations).—About 2 miles southwest of railroad station. May be reached by bus.

Cereal Crops and Diseases.—Breeding and genetic studies of wheat for quality, disease resistance, hardiness, and yield; classification of flax varieties; breeding oats for yield, quality, and smut resistance; studies on physiologic forms of bunt. Directed from Washington, D. C.; local supervision by Clyde McKee, collaborator.

Havre

Northern Montana Branch Station, State Agricultural Experiment Station (cooperative investigations).—About 7 miles southwest of Havre (Great Northern Ry.). May be reached by automobile, or transportation arrangements may be made by communicating with M. A. Bell, agent and superintendent. Telephone, 12–F–2 (listed as Northern Montana Substation).

Drug and Related Plants.—Field tests with special Russian safflower as an oilseed crop.

Directed from Washington, D. C.; local supervision by M. A. Bell, agent and superintendent.

Dry Land Agriculture.—Dry-land crop rotations and production. M. A. Bell, agent and superintendent, in charge.

Huntley

United States Huntley Field Station.—Four miles east of railroad station (Northern Pacific and Chicago, Burlington & Quincy R. Rs.). For transportation arrangements telephone the field station through the Worden, Mont., exchange.

Drug and Related Plants.—Field tests with special Russian safflower as an oilseed crop; test plantings of pyrethrum to determine the possibilities of this plant as a commercial crop. Directed from Washington, D. C.; local supervision by Dan Hansen, associate agronomist and superintendent.

Dry Land Agriculture.—Dry-land crop rotations and production. A. E. Seamans, associate agronomist, in charge.

Western Irrigation Agriculture.—Irrigated rotation and tillage experiments; varietal tests; livestock investigations and pasturing experiments (cooperation with Montana Agricultural Experiment Station and Bureau of Dairy Industry); investigations in the fluctuations of subsoil water. Dan Hansen, associate agronomist and superintendent, in charge.

Moccasin

Judith Basin Branch Station, State Agricultural Experiment Station (cooperative investigations).—About 1½ miles west of Moccasin (Great Northern Ry.), on main highway. May be reached by automobile, or transportation arrangements may be made by communicating with J. E. Norton, superintendent. Telephone, 14–F–30, Experiment Station.

Cereal Crops and Diseases.—Agronomic investigations of cereals (wheat, oats, barley, corn, and flax), including varietal comparisons; rate, date, and method of seeding; and breeding and selection. J. L. SUTHERLAND, junior agronomist, in charge.

Dry Land Agriculture.—Dry-land crop rotations and production. J. E. NORTON, agent, in charge.

NEBRASKA

Lincoln

State Agricultural Experiment Station (cooperative investigations).—University Farm is about 3 miles northeast of center of city. May be reached by bus marked "Agricultural College" or "University Place" from Eleventh and O Streets. Telephone, B–6891.

Cereal Crops and Diseases.—Agronomic and disease investigations of cereals, particularly wheat, including varietal comparisons, breeding, and genetic studies, and studies on winter hardiness and smut resistance. (Testing of small-grain varieties also conducted at North Platte and Alliance substations.) K. S. QUISENBERRY, agronomist, in charge.

Drug and Related Plants.—Test plantings of pyrethrum to determine the possibilities of this plant as a commercial crop. Directed from Washington, D. C.; W. E. LYNESS, of the experiment station, in local charge.

Forage Crops and Diseases.—Alfalfa investigations, including studies of relative susceptibility of alfalfa varieties to bacterial wilt, the development of a simple but accurate method of testing new strains for cold resistance, and the fundamental problems of winter hardiness; selection, breeding, and nursery tests of alfalfa, including a study of alfalfa varieties and origins; breeding for wilt resistance, and a study of the interrelations between alfalfa productivity and the moisture supply. H. M. Tysdal, associate agronomist, in charge. In agronomy department.

Investigations in sweetclover varieties, methods of culture, and breeding. Samuel Garver, associate agronomist, in charge. In agronomy department.

Breeding and improvement of grasses through selection and hybridization; detailed studies of available species of native and introduced grasses. L. C. Newell, assistant agronomist, in charge.

Mitchell

United States Scotts Bluff Field Station.—Five miles east of Chicago, Burlington & Quincy Railroad station. Visitors will be met by automobile from field station at Gering, Scottsbluff, Mitchell, or South Mitchell. Telephone, 58–S–11, Scottsbluff exchange, or 40–S–11, Mitchell exchange (both telephones listed as Experiment Farm).

Western Irrigation Agriculture.—Irrigated rotation and tillage experiments; varietal tests of alfalfa and other crops; experiments with potatoes and sugar beets and investigations relating to control of potato diseases; pasturing experiments and livestock investigations, including dairying and lamb feeding (cooperation with State Agricultural Experiment Station); investigations in the water requirements of crops (cooperation with the Bureau of Agricultural Engineering). Lionel Harris, junior agronomist, acting in charge.

North Platte

North Platte Substation, State Agricultural Experiment Station (cooperative investigations).—About 3 miles south of Union Pacific Railroad station. May be reached by automobile, or transportation arrangements may be made by communicating with L. L. Zook, superintendent. Telephone, 499 (listed as Experiment Station).

Dry Land Agriculture.—Dry-land crop rotations and production. L. L. Zook, associate agronomist and superintendent, in charge.

Scottsbluff

United States Sugar Plant Field Office.—In Post Office Building at Scottsbluff (Chicago, Burlington & Quincy R. R.).

Sugar Plant Investigations.—Agronomic investigations with sugar beets. Field experiments are conducted in vicinity of Scottsbluff, Nebr., Torrington, Wyo., and Belle Fourche, S. Dak. S. B. Nuckols, associate agronomist, in charge.

United States Soil Fertility Field Laboratory.—In Post Office Building, corner of Sixteenth and Second Avenue. Scottsbluff may be reached on the Chicago, Burlington & Quincy Railroad; also Union Pacific to Gering (2 miles across North Platte River); or by bus from Sidney.

Soil Fertility Investigations.—Fertilizer requirements and soil adaptability of different soil types for sugar-beet production. E. S. Lyons, associate soil technologist, in charge.

NEVADA

Fallon

United States Newlands Field Station.—One mile south of Southern Pacific Railroad station. Visitors will be met at Fallon by automobile from field station. Telephone, 146–R (listed as Experiment Station).

Western Irrigation Agriculture.—Varietal tests of field crops under irrigation, particularly grain; tests of horticultural crops; the quality of subsoil waters; field and laboratory experiments in the reclamation of saline and impermeable soils; and livestock investigations, particularly dairying (cooperation with Nevada Agricultural Experiment Station). E. W. Knight, associate agronomist and superintendent, in charge.

South Point

United States Horticultural Experiments.—On Fort Mojave, Indian Reservation. South Point is about 14 miles north of Needles, Calif. (Atchison, Topeka & Santa Fe Ry.), and may be reached by automobile from there.

Fruit and Vegetable Crops and Diseases.—Tests of pest-free date palm varieties (cooperation with Bureau of Indian Affairs). Directed by F. A. THACKERY, senior agriculturist, Indio, Calif.; local supervision by Indian caretaker.

NEW JERSEY

Morristown

United States Dutch Elm Disease Laboratory.—8 Whippany Road, 1¼ miles from railroad station in Morristown (Delaware, Lackawanna & Western R. R.; also bus from Newark). May be reached by Morristown-Whippany bus. Telephone, 4–3716.

Forest Pathology.—Investigations of Dutch elm disease. CURTIS MAY, senior pathologist, in charge.

Pemberton

Cranberry Station, State Agricultural Experiment Station (cooperative investigations).—37 Elizabeth Street. Pemberton is about 25 miles east of Philadelphia, and may be reached by branch lines of the Pennsylvania Railroad or by bus. Telephone, 113.

Fruit and Vegetable Crops and Diseases.—Investigations of diseases of cranberries and blueberries. (Field work conducted at various points in New Jersey.) R. B. WILCOX, associate pathologist, in charge.

Weymouth

United States Blueberry Experiments.—On property of the Atlantic Co. for the Culture of Cranberries. Weymouth is between Mays Landing and Hammonton, and may be reached by automobile from either place. Post-office address, Pemberton, N. J.

Plant Exploration and Introduction.—Blueberry investigations, including growing and bringing to maturity, for purposes of observation and selection, blueberry hybrids produced by the United States Department of Agriculture. C. S. Beckwith, cooperator, in charge.

NEW MEXICO

Albuquerque

United States Forest Pathology Field Laboratory.—310 Post Office Building. Within walking distance from railroad and bus stations. Telephone, 229 (listed as U. S. Government, Bureau of Plant Industry).

Forest Pathology.—Investigation of forest and ornamental tree diseases; direction of forest-pathology activities for National Forest Region 3 (cooperation with Forest Service). W. H. Long, senior pathologist, in charge.

State College

State Agricultural Experiment Station (cooperative investigations).—One-half mile from Atchison, Topeka & Santa Fe Railway station at Mesilla Park (3 miles from Las Cruces, N. Mex.). Visitors will be met by automobile. Telephone, Las Cruces exchange 254.

Sugar Plant Investigations.—Sugar-beet breeding and variety testing; experiments on sugar-beet seed production. J. C. Overpeck, agent, in charge.

United States Cotton Field Station.—On mesa near buildings of the New Mexico College of Agriculture and Mechanic Arts, 1 mile from the Atchison, Topeka & Santa Fe Railway station at Mesilla Park and 3 miles from Las Cruces. Transportation arrangements should be made in advance with A. R. Leding, superintendent. Telephone, Las Cruces 686–R–3 (listed as U. S. Government, Department of Agriculture Field Station).

Cotton and Other Fiber Crops and Diseases.—Investigations in cotton breeding and improvement, genetics, ginning, and promotion of farm use of improved seed stocks. A. R. Leding, chief scientific aide and superintendent, in charge.

Tucumcari

United States Dry Land Field Station.—About 2 miles northeast of Tucumcari (Chicago, Rock Island & Pacific Ry. and Southern Pacific R. R.). May be reached by automobile, or transportation arrangements may be made by communicating with D. R. Burnham, superintendent. Telephone, 261.

Cereal Crops and Diseases.—Agronomic investigations with sorghums and broomcorn, including varietal comparisons and rates and dates of seeding. Directed from Washington, D. C.; local supervision by D. R. Burnham, associate agronomist and superintendent.

Dry Land Agriculture.—Dry-land crop rotations and production and varietal tests and investigations on rate and date of seeding of cotton (cooperation with New Mexico College of Agriculture). D. R. Burnham, associate agronomist and superintendent, in charge.

NEW YORK

Babylon

United States Floricultural Field Laboratory.—In Entomology Laboratory, 1½ miles from post office in Babylon (Long Island R. R. from New York City), on Deer Park Avenue. May be reached by automobile from station, or transportation may be arranged by communicating with the laboratory. Telephone, 307.

Fruit and Vegetable Crops and Diseases.—Investigation of diseases of ornamental bulbs, especially mosaic diseases of narcissus and iris, and narcissus basal rot (cooperation with Bureau of Entomology and Plant Quarantine and Cornell University). F. A. Haasis, agent, in charge. (Work conducted during growing season only.)

Nematology.—Studies of the nematode disease of flowering bulbs, with special reference to the narcissus nematode. Grace S. Cobb, junior pathologist, Washington, D. C., in charge; local supervision by F. J. Spruijt, of the Bureau of Entomology and Plant Quarantine.

Ithaca

Agricultural Experiment Station, Cornell University (cooperative investigations).—About 1½ miles east of Delaware, Lackawanna & Western and Lehigh Valley Railroad stations, and 1 mile west of New York Central Railroad station. Take streetcar to campus and walk one-fourth mile to Agricultural College.

Cereal Crops and Diseases.—Varietal comparisons of wheat, oats, and barley; extensive breeding and studies of inheritance in wheat and oats. W. T. Craig, agent, in charge.

Investigations of cytology and embryogeny of corn. L. F. Randolph, cytologist, in charge. In botany department.

Fruit and Vegetable Crops and Diseases.—Potato-breeding and seed-potato improvement investigations. J. R. Livermore, Donald Reddick, and E. V. Hardenburg, collaborators.

New York City

United States Market Pathology Laboratory.—Room 1022, Government Warehouse, 641 Washington Street. Telephone, Canal 6–2100, extension 294.

Fruit and Vegetable Crops and Diseases.—Investigations in the handling, transportation, and storage of fruits and vegetables, with particular reference to diseases which cause spoilage during transit and on the market (cooperation with Bureau of Agricultural Economics). C. O. Bratley, associate pathologist, in charge.

NORTH CAROLINA

Atkinson

United States Blueberry Experiments.—On plantation of H. G. Huntington, 4½ miles northeast of Atkinson (Atlantic Coast Line R. R.), on road leading toward Beatty's Bridge. May be reached by automobile.

Plant Exploration and Introduction.—Blueberry investigations, including growing and bringing to maturity, for purposes of observation and selection, blueberry hybrids produced by the United States Department of Agriculture. William Horrell, superintendent of the plantation, in charge.

Chadbourn

United States Soil Fertility Field Laboratory.—At edge of town, going east, on Highway No. 20. In Building No. 2. Visitors will be met by automobile at railway station upon request. Telephone, 307.

Soil Fertility Investigations.—Investigations on the relation of fertilizers, soil types, soil acidity, and organic matter content to growth, yield, and keeping qualities of strawberries. R. A. Lineberry, assistant chemist, in charge.

Oxford

Tobacco Branch Station, State Department of Agriculture and State Agricultural Experiment Station (cooperative investigations).—One mile southwest of Oxford (Seaboard Air Line and Southern Rys.). May be reached by automobile. Telephone, 41–J.

Tobacco and Plant Nutrition.—Flue-cured tobacco investigations, including cropping tests with tobacco; fertilizer requirements of tobacco, especially nutrient elements not ordinarily considered in fertilizer practice; tobacco breeding; improvements in tobacco curing; investigations of diseases of tobacco and their control. E. G. Moss, senior agronomist, in charge.

Raleigh

State Agricultural Experiment Station (cooperative investigations).—Two miles west of Raleigh. May be reached by bus.

Cotton and Other Fiber Crops and Diseases.—Investigations in North Carolina and South Carolina on the promotion of the farm use of improved cottonseed stocks. J. A. Shanklin, assistant agricultural economist, in charge. In Agronomy Building.

Investigations in cotton breeding, genetics, and improvement. P. H. Kime, associate agronomist, in charge.

Fruit and Vegetable Crops and Diseases.—Peach-production investigations in the sand hills of North Carolina. I. D. Jones, agent, in charge. In Horticultural Building. (Field experiments conducted at Jackson Springs in orchards of private cooperators.)

Potato-breeding investigations and seedling potato tests. M. E. Gardner, collaborator, in charge. (Similar investigations also conducted at Willard, Newlands, and Swannanoa, N. C.)

Soil Fertility Investigations.—Cotton and truck-crop soil and fertilizer studies in North Carolina. Directed by J. J. Skinner, senior biochemist, Washington, D. C.; local supervision by station officials.

Tobacco and Plant Nutrition.—Tobacco disease investigations with special reference to root knot and other disease problems of eastern North Carolina. (Field experiments conducted at Angier, 9 miles south of Raleigh.) Directed from Washington, D. C.; local supervision by station officials.

Rocky Mount

Upper Coastal Plain Branch Station, State Department of Agriculture and State Agricultural Experiment Station (cooperative investigations).—Seven and one-half miles east of Rocky Mount (Atlantic Coast Line R. R.), on the Cokey Road. Mr. Currin, assistant director, may be reached by telephone, Edgecombe Test Farm, No. 5202.

Tobacco and Plant Nutrition.—Tobacco-variety tests; fertilizer and crop-rotation experiments with tobacco, and studies on disease control. R. E. Currin, agent, in charge.

Statesville

Piedmont Branch Station, State Department of Agriculture and State Agricultural Experiment Station (cooperative investigations).—One and one-half miles northwest of Statesville (Southern Ry.; also on bus line). Telephone, 69–M (listed as Experimental Farm, Taylorsville Road).

Forage Crops and Diseases.—Studies of acid-tolerant legumes, lespedeza varieties and culture; tests of strains of red clover and alfalfa; tests of varieties of soybeans. R. E. Stitt, assistant agronomist, in charge. (Office and laboratory at U. S. Cotton Field Station, adjoining Piedmont Branch Station.)

United States Cotton Field Station.—Adjoining the Piedmont Branch Station, 1½ miles northwest of Statesville (Southern Ry.). Communicate with J. W. Hendricks, superintendent, regarding transportation.

Cotton and Other Fiber Crops and Diseases.—Cotton breeding, culture, and seed improvement; cotton genetics and cytogenetics (cooperation with North Carolina Department of Agriculture and Agricultural Experiment Station). J. W. Hendricks, agent, in charge.

Drug and Related Plants.—Test plantings of pyrethrum to determine the possibilities of this plant as a commercial crop. Directed from Washington, D. C.; local supervision by J. W. Hendricks, agent.

Willard

Coastal Plain Branch Station, State Department of Agriculture and State Agricultural Experiment Station (cooperative investigations).—One mile north of Atlantic Coast Line Railroad station. Atlantic Coast Line Railroad bus between Wilmington, Goldsboro, and Raleigh discharges passengers at East Wallace, 3 miles from the substation. Visitors will be met at East Wallace bus station by automobile. Telephone, 62–L–13, through Wallace exchange.

Forage Crops and Diseases.—Investigations of legumes adapted to the coastal plain area, especially acid-tolerant legumes; investigations also with crotalaria, lespedeza, and winter legumes for green manuring. Directed from Washington, D. C.; local supervision by station officials.

Fruit and Vegetable Crops and Diseases.—Cultural, breeding, and other investigations pertaining to the muscadine grape. C. T. Dearing, associate horticulturist, in charge.

Small-fruit investigations, breeding and testing of varieties of strawberries, blackberries, and raspberries. Directed by G. M. Darrow, senior pomologist, Beltsville, Md.; local supervision by C. T. Dearing, associate horticulturist.

Bulb-culture investigations, particularly daffodils and tulips; other bulbous crops also studied; field investigations of diseases of bulbs and other ornamental plants. Directed by S. L. Emsweller, principal horticulturist, Beltsville, Md.; local supervision by C. T. Dearing, associate horticulturist.

Investigation of strawberry diseases, especially the "dwarf" disease and root rots. G. A. Meckstroth, associate pathologist, in charge.

Nematology.—Investigations relative to nematode diseases of plants, particularly the "dwarf" disease of strawberries. J. R. CHRISTIE, associate nematologist, Washington, D. C., in charge; local supervision by C. T. DEARING, associate horticulturist.

NORTH DAKOTA

Dickinson

Dickinson Substation, State Agricultural Experiment Station (cooperative investigations).—About 1 mile northwest of Dickinson (Northern Pacific Ry.; bus connection with Great Northern Railway at Williston, and with Chicago, Milwaukee, St. Paul & Pacific R. R. at Bowman). May be reached by automobile, or transportation arrangements may be made by telephoning the superintendent. Telephone, 295–J.

Cereal Crops and Diseases.—Agronomic investigations of cereals, principally wheat, oats, barley, flax, and corn, including varietal comparisons; rates, dates, and methods of seeding; breeding and selection; also special study of northern short-season corns and of weed control in flax. R. W. SMITH, associate agronomist, in charge.

Dry Land Agriculture.—Dry-land crop rotations and production. LEROY MOOMAW, associate agronomist and superintendent, in charge.

Fargo

State Agricultural Experiment Station (cooperative investigations).—About 1½ miles northwest of city. Take streetcar marked "Agricultural College." Telephone, 4903.

Cereal Crops and Diseases.—Wheat-improvement studies, including breeding and testing for disease resistance. G. S. SMITH, assistant agronomist, in charge.

Pathologic experiments on diseases of flax, including flax rust, flax wilt, two kinds of flax canker, and the pasmo disease. H. H. Flor, pathologist, in charge. In Biology Building.

Fruit and Vegetable Crops and Diseases.—Growing and testing of seedling potatoes. A. F. Yeager, collaborator, in charge.

Langdon

Langdon Substation, State Agricultural Experiment Station (cooperative investigations).—About 1 mile east of Langdon (Great Northern Ry.). Communicate with Victor Sturlaugson, superintendent, regarding transportation arrangements. Telephone, 19–F–1.

Cereal Crops and Diseases.—Investigations in the improvement of wheat, principally methods of production and breeding varieties for quality and disease resistance. G. S. Smith, assistant agronomist, Fargo, in charge.

Mandan

United States Northern Great Plains Field Station.—About 1 mile southwest of Mandan (Northern Pacific Ry.). May be reached by automobile, or transportation arrangements may be made by communicating with J. M. Stephens, superintendent. Telephone, 348.

Cereal Crops and Diseases.—Extensive agronomic and genetic studies on seed flax, including breeding for resistance to flax wilt and rust, and cultural methods to control weeds; varietal comparisons of wheat, oats, and barley, and limited spring-wheat breeding experiments for resistance to rust and drought and improvement in quality. J. C. Brinsmade, Jr., assistant agronomist, in charge.

Varietal and improvement studies on corn. Directed from Washington, D. C.; local supervision by officials at the station.

Drug and Related Plants.—Field tests with special Russian safflower as an oilseed crop for the production of drying oils. Directed from Washington, D. C.; local supervision by J. C. BRINSMADE, Jr., assistant agronomist.

Dry Land Agriculture.—Dry-land crop rotations and production; study of effect of grazing upon native vegetation; varietal testing, breeding, and cultural experiments with fruits, ornamental plants, and garden vegetables; shelterbelt investigations and distribution in cooperation with farmers; dairy investigations (cooperation with Bureau of Dairy Industry); grazing and native vegetation studies (cooperation with North Dakota Agricultural Experiment Station). J. M. STEPHENS, principal agriculturist and superintendent, in charge.

Shelterbelt investigations. E. J. GEORGE, assistant silviculturist, in charge.

Agronomic and grazing investigations. J. T. SARVIS, associate agronomist, in charge.

Horticultural investigations. W. P. BAIRD, associate horticulturist, in charge.

OHIO

Columbus

State College of Agriculture (cooperative investigations).—About 3 miles from railroad station at Columbus. May be reached by streetcar.

Cereal Crops and Diseases.—Genetic and breeding studies with corn (cooperation with Ohio Agricultural Experiment Station). Directed by G. H. STRINGFIELD, associate agronomist, from Wooster; J. B. PARK, of the experiment station, in local charge.

Holgate

Northwestern Experiment Farm, State Agricultural Experiment Station (cooperative investigations).—About one-half mile south of Holgate (Baltimore & Ohio R. R.). Visitors will be met by automobile from station by communicating with J. B. McLaughlin, agent and superintendent.

Forage Crops and Diseases.—Breeding and genetic studies with red clover; physiological and agronomic studies with alfalfa and red clover; adaptation and selection of soybean introductions and varieties. David Heusinkveld, assistant agronomist, in charge.

Sugar Plant Investigations.—Cooperative experiments on sugar-beet agronomy. Directed by J. G. Lill, East Lansing, Mich.; local supervision, by J. B. McLaughlin, agent and superintendent.

McGuffey

Muck Crops Experiment Farm, State Agricultural Experiment Station (cooperative investigations).—About 7 miles from Ada (Pennsylvania R. R.). From Ada take Road 69 to 30–S, 30–S to 195, and 195 to McGuffey; continue through McGuffey, turn right on first road past McGuffey, and continue to second building on left side of road. Telephone, Muck Crops Experiment Farm.

Fruit and Vegetable Crops and Diseases.—Studies in connection with vegetable variety type-book work on onions. H. D. Brown, collaborator, in charge.

Wooster

State Agricultural Experiment Station (cooperative investigations).—About 1 mile south of Wooster (Baltimore & Ohio and Pennsylvania R. Rs.) May be reached by automobile. Telephone, 39.

Cereal Crops and Diseases.—Investigations on the physiology of corn. J. D. Sayre, physiologist, in charge.

Investigations on breeding and methods of corn production. G. H. Stringfield, associate agronomist, in charge.

Forage Crops and Diseases.—Investigations with timothy, including breeding, genetic, and physiological studies; developing new strains of timothy; life-history studies of grasses. M. W. EVANS, associate agronomist, in charge.

Forest Pathology.—Investigation of Dutch elm disease. R. U. SWINGLE, agent, in charge.

OKLAHOMA

Lawton

United States Dry Land Field Station.—About 1½ miles north of Lawton (Chicago, Rock Island & Pacific and St. Louis-San Francisco Rys.). Take Fort Sill bus to station, or communicate with W. M. OSBORN, superintendent, regarding transportation. Telephone, 21 (listed as Experiment Farm).

Cereal Crops and Diseases.—Agronomic and breeding investigations with sorghums and broomcorn, with emphasis on chinch-bug resistance, and varietal comparisons and rates and dates of seeding; varietal tests with wheat. R. O. SNELLING, assistant agronomist, in charge.

Dry Land Agriculture.—Dry-land crop rotations and production; varietal tests and investigations on rate and date of seeding of cotton, wheat, oats, and barley; study of chinch-bug control (cooperation with Bureau of Entomology and Plant Quarantine and Kansas and Oklahoma Agricultural Colleges). W. M. OSBORN, associate agronomist and superintendent, in charge.

Stillwater

State Agricultural Experiment Station (cooperative investigations).—About three-fourths mile from bus station and 1 mile from railroad station (Atchison, Topeka & Santa Fe Ry.). Transportation arrangements should be made in advance with C. P. BLACKWELL, of the experiment station.

Cotton and Other Fiber Crops and Diseases.—Investigations in cotton breeding, genetics, and improvement. Directed from Washington, D. C.; local supervision by C. P. BLACKWELL, director of the station.

Woodward

United States Southern Great Plains Field Station.—About 1 mile southwest of Woodward (Atchison, Topeka & Santa Fe and Missouri, Kansas & Texas Rys.). Transportation arrangements may be made by communicating with E. F. CHILCOTT, superintendent. Telephone, 99.

Cereal Crops and Diseases.—Extensive agronomic investigations of sorghums and broomcorn, including varietal comparisons; studies of rates and dates of seeding and the spacing of rows and of plants in the row; hybridization and selection; and genetic studies. J. B. SIEGLINGER, agronomist, in charge.

Agronomic investigations with wheat, including cultural, breeding, and genetic experiments. V. C. HUBBARD, junior agronomist, in charge.

Dry Land Agriculture.—Dry-land crop rotations and production; horticultural and vineyard investigations; forestry investigations; investigations and cooperative shelterbelt distribution with farmers. E. F. CHILCOTT, senior agriculturist and superintendent, in charge.

Horticultural investigations. L. F. LOCKE, associate horticulturist, in charge.

Dry-land investigations. O. R. MATHEWS, associate agronomist, in charge.

Shelterbelt investigations. E. W. JOHNSON, agent, in charge.

OREGON

Astoria

John Jacob Astor Branch Station, State Agricultural Experiment Station (cooperative investigations).—About 2 miles from center of Astoria (Southern Pacific R. R.).

Tobacco and Plant Nutrition.—Investigations in breeding and growing tobacco of high nicotine content for use in insecticides. Directed from Washington, D. C.; local supervision by H. B. Howell, of the experiment station.

Corvallis

State Agricultural Experiment Station (cooperative investigations).—About 1 mile from center of town. May be reached by bus. Telephone, College 97.

Cereal Crops and Diseases.—Investigations of foot-rot diseases of cereals, especially wheat, and studies on bunt control. Roderick Sprague, assistant pathologist, in charge. In department of botany and plant pathology.

Cotton and Other Fiber Crops and Diseases.—Experiments with fiber flax and other bast fiber plants; plant breeding with flax and hemp, cultural tests, soil-type and fertilizer tests in fields of flax growers, retting and scutching in experimental flax mill, spinning tests in spinning mill at Salem, and disease-resistance tests at John Jacob Astor Branch Station at Astoria. B. B. Robinson, associate plant breeder, in charge.

Drug and Related Plants.—Investigation of the distribution and control of downy mildew and other diseases of hops; investigation of the quality of hops as affected by various factors. G. R. Hoerner, agent, in charge.

Forage Crops and Diseases.—Agronomic investigations with forage crops, including vetches, clovers, grasses, alfalfa, and miscellaneous legumes; plot experiments in studies of rates and dates of seeding; varietal comparisons; studies in hybridization and selection. H. A. Schoth, agronomist, in charge.

Fruit and Vegetable Crops and Diseases.—Nut-production investigations. C. E. Schuster, horticulturist, in charge.

Nut-disease investigations. P. W. Miller, associate pathologist, in charge.

Small-fruit investigations. G. F. Waldo, assistant pomologist, in charge.

Investigations of mosaic and other virus diseases of the potato, involving insect and host relations to these diseases, ———, in charge.

Investigations on disease resistance and nature of resistance of different vegetables to curly top; investigations on nature of curly-top virus. B. F. Dana, pathologist, in charge.

Investigations of diseases of ornamentals, especially narcissus, iris, lilies, and tulips. F. P. McWhorter, agent, in charge. In Agricultural Building.

Tobacco and Plant Nutrition.—Investigations in breeding and growing tobacco of high nicotine content for use in insecticides. Directed from Washington, D. C.; local supervision by G. R. Hyslop, of the experiment station.

Cooperative Seed Testing Laboratory.—At College of Agriculture. May be reached by bus. Telephone 620, extension 116 (listed as College of Agriculture, Farm Crops Department).

Seed Investigations.—Making tests of seeds for mechanical purity and germination and similar work, including identification of seeds and plants, and making tests of seeds in connection with enforcement of the Federal Seed Act. G. R. Hyslop, of the experiment station, in charge; Grace Cole Fleischman, assistant botanist.

Hermiston

United States Umatilla Field Station.—Two miles south of Hermiston (Union Pacific System). Visitors will be met at Hermiston by automobile from field station. Telephone, 67–F–2.

Drug and Related Plants.—Test plantings of pyrethrum to determine the possibilities of this plant as a commercial crop. Directed from Washington, D. C.; local supervision by H. K. Dean, associate agronomist and superintendent.

Western Irrigation Agriculture.—Irrigated rotation and tillage experiments; land-reclamation studies; variety tests of alfalfa and other crops; tests of pasture grasses and irrigation methods (cooperation with Bureau of Agricultural Engineering); experiments in turkey feeding and dairying (cooperation with Oregon Agricultural Experiment Station); and investigations in the curly-top disease of sugar beets, particularly its relation to injury sustained by certain crops including tomatoes. H. K. DEAN, associate agronomist and superintendent, in charge.

Hood River

United States Fruit Disease Field Laboratory.—Rooms 22 and 23, Pythian Building, about two blocks from Union Pacific System railroad station. Hood River may also be reached by bus from Portland. Telephone, 1304.

Fruit and Vegetable Crops and Diseases.—Perennial apple-canker investigations. E. V. SHEAR, associate pathologist, in charge.

Medford

Medford Pear Investigation Laboratory (cooperation with State Agricultural Experiment Station).—About 1½ miles south of city limits of Medford (Southern Pacific R. R.; bus from Portland, Oreg.). Visitors will be met by automobile if advance arrangements are made. Telephone, 579.

Fruit and Vegetable Crops and Diseases.—Pear-irrigation investigations and related orchard-management practices (conducted at Medford Branch Station). W. W. ALDRICH, associate horticulturist, in charge.

Investigations on the handling, transportation, and storage of pears. EDWIN SMITH, senior horticulturist, Wenatchee, Wash., in charge.

Moro

Sherman County Branch Experiment Station, State Agricultural Experiment Station (cooperative investigations).—Most convenient way to reach Moro (Union Pacific System) from the main line is by bus from The Dalles, by the Union Pacific and Columbia Gorge companies. A night's wait now is required at Biggs to make connection from main-line trains. Telephone, Main 281.

Cereal Crops and Diseases.—Extensive agronomic investigations of dry-land cereals, chiefly wheat, oats, and barley, and of methods of cereal improvement and production, including varietal comparisons, genetics and breeding, rates, dates, and methods of seeding, tillage, seedbed preparation, fallowing methods, and rotation effects. D. E. STEPHENS, senior agronomist and superintendent, in charge.

Pendleton

Pendleton Field Station, State Agricultural Experiment Station (cooperative investigations).—Ten miles northeast of Pendleton (Union Pacific System; Union Pacific transcontinental stages also pass through Pendleton). Communicate with G. A. MITCHELL regarding transportation arrangements to station. Telephone, 39–F–4.

Cereal Crops and Diseases.—Agronomic and disease investigations with cereals, chiefly wheat, oats, and barley, including culture, varietal comparisons, genetics and breeding, and control of bunt. J. FOSTER MARTIN, assistant agronomist, in charge.

Dry Land Agriculture.—Dry-land crop rotations and production. G. A. MITCHELL, assistant agronomist, in charge.

Portland

United States Forest Pathology Field Laboratory.—Post Office Building, Northwest Broadway and Glisan Streets, three blocks from railroad station. Telephone, Atwater 6171 (listed as U. S. Government, Forest Service).

Forest Pathology.—Investigations of forest and ornamental tree diseases; direction of forest pathology activities for National Forest Region 6 (cooperation with Forest Service). J. L. Bedwell, pathologist, in charge.

PENNSYLVANIA

Kylertown

Forage Crop Field Experiments (cooperation with State Agricultural Experiment Station).—About one-half mile northwest of post office in Kylertown (Pennsylvania R. R. from State College to Tyrone, then by bus). Visitors will be met by automobile if advance arrangements are made with the superintendent. No telephone, but may be reached on Winburne 37–R–21 (telephone of Dr. H. G. Jones).

Forage Crops and Diseases.—Pasture investigations, including tests of carrying capacity and productiveness under grazing conditions; comparisons of a large number of grasses and legumes in pure cultures on small plots; also tests of fertilizers. S. R. Skaggs, agent, in charge.

Lancaster

Tobacco Field Experiments (cooperation with State Agricultural Experiment Station).—Northeast of Lancaster, on Oregon Pike, 1 mile from Pennsylvania Railroad station. No transportation available except by bus from Lancaster to Reading, which goes within one-fourth mile of experimental field.

Tobacco and Plant Nutrition.—Tobacco-fertilizer experiments, tobacco-breeding experiments, and crop-rotation experiments with tobacco as the principal crop; investigations in breeding and growing tobacco of high nicotine content for use in insecticides. OTTO OLSON, associate agronomist, in charge.

Philadelphia

Forest Pathology Field Laboratory (cooperation with University of Pennsylvania).—In botany department, University of Pennsylvania, Thirty-eighth Street and Woodland Avenue. Reached by elevated train or streetcar. Telephone, Baring 7741.

Forest Pathology.—Investigations of diseases of forest and shade trees in Pennsylvania, Maryland, Delaware, and New Jersey, featuring butt rots of sprout hardwoods, diseases of coniferous nursery stock, and mycorrhiza (cooperation with Allegheny Forest Experiment Station). L. W. R. JACKSON, assistant pathologist, in charge.

State College

State Agricultural Experiment Station (cooperative investigations).—Twenty-eight miles from Tyrone (Pennsylvania R. R.). Busses meet trains for State College.

Fruit and Vegetable Crops and Diseases.—Orchard tests of understocks. R. D. ANTHONY, collaborator, in charge.

PUERTO RICO

Guayama

United States Sugar Plant Field Laboratory.—Six miles northeast of Guayama. For directions in regard to reaching the laboratory inquire at Office of Irrigation Service, Department of Interior, Government of Puerto Rico, Guayama. Visitors will be met by automobile from laboratory; telephone through exchange operated by Central Aguirre Sugar Co.

Sugar Plant Investigations.—Botanical investigations of varieties of sugarcane and experimental sugarcane-breeding investigations. B. D. GIBBENS, assistant agronomist, in charge.

RHODE ISLAND

Kingston

State Agricultural Experiment Station (cooperative investigations).—About 3 miles north of New York, New Haven & Hartford Railroad station. May be reached by automobile.

Fruit and Vegetable Crops and Diseases.—Testing potato seedlings. T. E. Odland, collaborator, in charge.

SOUTH CAROLINA

Charleston

Truck Experiment Station, State Agricultural Experiment Station (cooperative investigations).—About 8 miles southeast of Charleston (Atlantic Coast Line R. R., and Seaboard Air Line and Southern Rys.). For transportation arrangements communicate with W. D. Moore, Box 337, Charleston.

Fruit and Vegetable Crops and Diseases.—Investigations of bean diseases, with special emphasis on root rots; seed source for disease-free seed; studies on the control of mildew and other bean diseases. W. D. Moore, associate pathologist, in charge.

United States Regional Vegetable Breeding Laboratory.—About 7 miles west of Charleston on U. S. Highway No. 17. May be reached by bus from Charleston.

Fruit and Vegetable Crops and Diseases.—Basic studies in the genetics, pathology, structure, physiology, and their interrelationships to vegetable crop plants for the ultimate orderly development of varieties of high quality, disease resistance, and improved adaptation to the Southeastern United States. B. L. Wade, senior geneticist, in charge.

Clemson College

State Agricultural Experiment Station (cooperative investigations).—About 1½ miles from Southern Railway station at Calhoun. Reached by bus line from Greenville, S. C., to Atlanta, Ga.

Cotton and Other Fiber Crops and Diseases.—Cotton fiber and spinning investigations (cooperation with Bureau of Agricultural Economics). M. E. CAMPBELL, of Bureau of Agricultural Economics, in charge.

Investigations in cotton-plant physiology. G. M. ARMSTRONG, collaborator, in charge.

Nematology.—Investigations on factors instrumental in producing the so-called "soreshin" or "big shank" disease of cotton seedlings. J. R. CHRISTIE, associate nematologist, Washington, D. C., in charge; local supervision by C. H. ARNDT, of the experiment station.

Columbia

Sandhill Experiment Station, State Agricultural Experiment Station (cooperative investigations).—Near Pontiac, S. C., about 15 miles northeast of State Capitol Building and Post Office in Columbia (Seaboard Air Line, Southern Ry., and Atlantic Coast Line R. R.), on United States Highway No. 1 (Dixie Highway). Bus line from Columbia. Telephone: Dial 116 (county operator) and ask for 72–F–11.

Forage Crops and Diseases.—Agronomic investigations with soybeans, cowpeas, velvetbeans, pigeonpeas, crotalarias, vetches, and winter peas; green-manure and cover-crop studies; pasture investigations and tests of newly introduced grasses and legumes. W. A. CARNES, agent, in charge.

Fruit and Vegetable Crops and Diseases.—Grape production investigations, including varietal adaptation; root-stock investigations; breeding. L. E. SCOTT, agent, in charge.

Soil Fertility Investigations.—Improvement and maintenance of the fertility of sandy soils of the South by green manuring and fertilizers; cotton soil and fertilizer studies. **Nelson McKaig**, Jr., associate soil technologist, in charge.

Florence

Pee Dee Experiment Station, State Agricultural Experiment Station (*cooperative investigations*).—About 3 miles north of railroad station (Atlantic Coast Line R. R., and Seaboard Air Line Ry.), or 2½ miles from center of town on Darlington Road. May be reached by automobile. Telephone, 9002.

Cotton and Other Fiber Crops and Diseases.—Investigations in cotton breeding and improvement, genetics, and cytogenetics. W. H. **Jenkins**, associate agronomist, in charge.

Drug and Related Plants.—Test plantings of pyrethrum to determine the possibilities of this plant as a commercial crop. Directed from Washington, D. C.; local supervision by E. E. **Hall**, agent.

Fruit and Vegetable Crops and Diseases.—Investigations with peanuts and sweetpotatoes, including crop improvement by selection and methods of culture and handling. Directed from Washington, D. C.; local supervision by J. M. **McCown**, agent.

Tobacco and Plant Nutrition.—Flue-cured and Turkish tobacco investigations, including types of soil best suited to these types of tobacco; fertilizer requirements of the crop; tobacco variety tests; cropping systems of tobacco; tobacco diseases and their control. W. M. **Lunn**, associate agronomist, in charge.

SOUTH DAKOTA

Brookings

State Agricultural Experiment Station (*cooperative investigations*).—About 1 mile northeast of center of Brookings (Chicago & North

Western Ry.). May be reached by automobile.

Cereal Crops and Diseases.—Breeding nurseries for the improvement of wheat in adaptation, quality, and disease resistance; varietal testing. Directed from Washington, D. C.; local supervision by A. N. HUME, of the experiment station.

Newell

United States Belle Fourche Field Station.—Two and one-half miles northwest of post office in Newell (Chicago & North Western Ry.). Visitors will be met at Newell by automobile from field station. Telephone, 12.

Drug and Related Plants.—Field tests with special Russian safflower as an oilseed crop. Directed from Washington, D. C.; local supervision by BEYER AUNE, associate agronomist and superintendent.

Dry Land Agriculture.—Dry-land crop rotations and production. ALBERT OSENBRUG, associate agronomist, in charge.

Western Irrigation Agriculture.—Irrigated rotation and tillage experiments; varietal tests; livestock investigations and pasturing and winter-feeding experiments (cooperation with Bureau of Animal Industry and South Dakota Agricultural Experiment Station); investigations in drainage of seeped lands; tests of various cereal varieties. BEYER AUNE, associate agronomist and superintendent, in charge.

TENNESSEE

Greeneville

Tobacco Experiment Station, State Agricultural Experiment Station (cooperative investigations).—On R. F. D. No. 11, about 5 miles from Southern Railway station. Visitors will be met at Greeneville by experiment station bus. F. S. Chance, superintendent, may be reached by telephone on 255.

Tobacco and Plant Nutrition.—Burley tobacco investigations, including types of soil best adapted to the variety; fertilizer requirements, methods of growing, curing, and handling, and disease control with special reference to the development of improved disease-resistant strains of burley tobacco; investigations in breeding and growing tobacco of high nicotine content for use in insecticides. F. S. Chance, agent, in charge.

Knoxville

State Agricultural Experiment Station (cooperative investigations).—About 10 minutes' ride by streetcar from railroad station. Telephone, University of Tennessee Farm 48.

Cereal Crops and Diseases.—Agronomic studies of corn, including varietal comparisons, cultural studies, and breeding experiments. L. S. Mayer, assistant agronomist, in charge.

Drug and Related Plants.—Test plantings of pyrethrum to determine the possibilities of this plant as a commercial crop. Directed from Washington, D. C.; local supervision by B. D. Drain, of the experiment station.

United States Cotton Field Station.—Office in Corn and Cotton Laboratory at Tennessee Agricultural Experiment Station, about 10 minutes' ride by streetcar from railroad station. Field station located on Hall Farm, about 7 miles southwest of railroad station. Communicate with D. M. Simpson. Telephone, 3–2371.

Cotton and Other Fiber Crops and Diseases.—Cotton breeding and improvement; genetics and cytogenetics (cooperation with Tennessee Agricultural Experiment Station). D. M. Simpson, associate agronomist and superintendent, in charge.

TEXAS

Austin

United States Pecan Field Laboratory.—Nineteenth and Red River Streets. In Building K on "Little Campus", University of Texas. Take East Avenue and Oakwood bus at railroad station to Nineteenth Street and East Avenue; walk two blocks west. Telephone, 2–4455.

Fruit and Vegetable Crops and Diseases.—Pecan investigations, variety standardization, breeding, propagation, nutrition from standpoint of fruit setting and maturing, harvesting, drying, grading, and storage. Directed by H. L. CRANE, principal horticulturist, Beltsville, Md.; C. L. SMITH, associate physiologist, in local charge.

United States Soil Fertility Field Laboratory.—Between Eighteenth and Nineteenth on Red River Street. In Building H on "Little Campus", University of Texas. Bus runs within one block. Visitors will be met by automobile upon request. Telephone, 3282.

Soil Fertility Investigations.—Fertilizer and soil studies in relation to causes and eradication of cotton root rot; cotton soil and fertilizer studies. J. E. ADAMS, associate soil technologist, in charge.

Soil Microbiology.—Study of the micro-organic flora of the soil of central Texas in its relation to farming methods and specific cultivated crops. Conducted in cooperation with soil-fertility investigations in its study of the effect of agronomic practices upon the root rot of cotton. Directed from Washington, D. C.; local supervision by J. E. ADAMS, associate soil technologist.

Beaumont

Substation No. 4, State Agricultural Experiment Station (cooperative investigations).—Six miles west of Beaumont (Missouri Pacific and

Southern Pacific R. Rs.). Communicate with R. H. Wyche, superintendent, regarding transportation. Telephone, 9005.

Cereal Crops and Diseases.—Agronomic investigations with rice, including varietal comparisons, genetic and breeding investigations, and cultural, irrigation, and fertilizer studies. H. M. Beachell, assistant agronomist, in charge.

Big Spring

United States Dry Land Field Station.—One mile north of Big Spring (Texas & Pacific Ry.). May be reached by automobile, or transportation arrangements may be made by communicating with F. E. Keating. Telephone, 330.

Cereal Crops and Diseases.—Agronomic investigations with sorghums and broomcorn, including varietal comparisons and rates and dates of seeding. Directed from Washington, D. C.; local supervision by F. E. Keating, associate agronomist and superintendent.

Dry Land Agriculture.—Dry-land crop rotations and production; varietal tests and investigations on rate and date of seeding of cotton; varietal tests of fruits and grapes; cattle-feeding investigations (cooperation with Texas Agricultural Experiment Station and Bureau of Animal Industry). F. E. Keating, associate agronomist and superintendent, in charge.

Brownwood

United States Pecan Field Station.—About one-half mile from center of Brownwood (St. Louis-San Francisco and Gulf, Colorado & Santa Fe Rys.). Telephone, 1309.

Fruit and Vegetable Crops and Diseases.—Topworking experiments and pecan-culture investigations. Directed by C. L. Smith, associate physiologist, Austin; local supervision by Joseph Hamilton, junior pomologist.

Chillicothe

Substation No. 12, State Agricultural Experiment Station (cooperative investigations).—Four and one-half miles south and a little west, on the main highway from Chillicothe (Fort Worth & Denver City Ry.). Communicate with J. R. QUINBY, superintendent, regarding transportation arrangements. Telephone, 1621–F–3 (listed as Chillicothe Experiment Station).

Cereal Crops and Diseases.—Agronomic investigations with sorghums, with special attention to breeding new sorghum varieties and the study of sorghum genetics. J. C. STEPHENS, assistant agronomist, in charge.

College Station

State Agricultural Experiment Station (cooperative investigations).—Field plantings at Milano, 40 miles northwest of College Station (Southern Pacific R. R., and International & Great Northern Ry.). Telephone G. A. RUSSELL regarding transportation arrangements.

Cereal Crops and Diseases.—Wheat-breeding investigations, particularly the breeding of stem rust resistant varieties. E. S. MCFADDEN, associate agronomist, in charge.

Cotton and Other Fiber Crops and Diseases.—Investigations of cotton diseases and methods of control. L. M. BLANK, associate pathologist, in charge.

Investigations in cotton breeding, genetics, and improvement. T. R. RICHMOND, assistant agronomist, acting in charge.

Investigations in cotton-plant physiology. G. A. GREATHOUSE, associate physiologist, in charge.

Drug and Related Plants.—Experiments with devil's-shoestring to determine cultural requirements, toxicity, and commercial possibilities as a crop-yielding insecticide material. G. A. RUSSELL, agent, in charge; V. A. LITTLE, collaborator.

Dalhart

United States Dry Land Field Station.—Three miles southwest of Dalhart (Chicago, Rock Island & Pacific and Fort Worth & Denver City Rys.). May be reached by automobile, or telephone B. F. Barnes regarding transportation arrangements. Telephone, 913–A.

Cereal Crops and Diseases.—Agronomic investigations with sorghums and broomcorn, including varietal comparisons and rates and dates of seeding. Directed from Washington, D. C.; local supervision by B. F. Barnes, associate agronomist and superintendent.

Dry Land Agriculture.—Dry-land crop rotations and production; varietal tests and investigations on rate and date of seeding of cotton; forestry investigations (cooperation with the Forest Service). B. F. Barnes, associate agronomist and superintendent, in charge.

Denton

Substation No. 6, State Agricultural Experiment Station (cooperative investigations).—[illegible] miles northwest of Denton (Missouri, Kansas & Texas and Texas & Pacific Rys.). Communicate with P. B. Dunkle, superintendent, regarding transportation. Telephone, 678.

Cereal Crops and Diseases.—Agronomic investigations with small grains, particularly wheat and oats, including varietal comparisons, breeding and genetic studies, and cultural experiments. I. M. Atkins, assistant agronomist, in charge.

Greenville

United States Cotton Field Station.—Three and one-half miles southwest of Greenville (Southern Pacific R. R., Missouri, Kansas & Texas Ry., and St. Louis Southwestern

Ry.), on United States Highway 67 (Bankhead Highway). Communicate with H. C. McNamara regarding transportation arrangements. Telephone, 402–J or 402–W.

Cotton and Other Fiber Crops and Diseases.—Investigations on cotton improvement, genetics, botany, morphology, and plant physiology, culture, and ginning; also on cotton disease control, and in promoting farm use of improved seed stocks. H. C. McNamara, agronomist and superintendent, in charge.

Drug and Related Plants.—Test plantings of pyrethrum to determine the possibilities of this plant as a commercial crop. Directed from Washington, D. C.; local supervision by H. C. McNamara, agronomist and superintendent.

Weslaco

Substation No. 15, State Agricultural Experiment Station (cooperative investigations).—About 1½ miles south of Weslaco (Missouri Pacific R. R.). Telephone W. H. Friend, superintendent, regarding transportation.

Fruit and Vegetable Crops and Diseases.—Date investigations, including a series of tests of imported date offshoots to determine the varieties most likely to prove of commercial value in Texas; tests of citrus hybrids and stocks, as well as some introduced varieties of citrus. Directed from Washington, D. C.; local supervision by W. H. Friend, superintendent.

Winter Haven

Substation No. 19, State Agricultural Experiment Station (cooperative investigations).—Winter Haven is on the International & Great Northern Railway, about 5 miles from Crystal City and 7 miles from Carrizo Springs. Telephone E. Mortensen, superintendent, regarding transportation.

Fruit and Vegetable Crops and Diseases.—Studies in connection with vegetable variety type-book work on onions. L. R. HAWTHORN, agent, in charge.

Date investigations, including a series of tests of imported date offshoots to determine the varieties most likely to prove of commercial value in Texas; tests of citrus hybrids and stock plants, as well as some introduced varieties of citrus. Directed from Washington, D. C.; local supervision by E. MORTENSEN, superintendent.

UTAH

Logan

State Agricultural Experiment Station (cooperative investigations).—About 1 mile east of Oregon Short Line Railroad station. May be reached by bus. Telephone, 100 (listed as Agricultural College).

Cereal Crops and Diseases.—Agronomic investigations, particularly with wheat, oats, and barley, including varietal comparisons, breeding, and genetics, especially for resistance to bunt and loose smut in wheat, and cultural studies. (Field experiments at Nephi and in the Salt Lake Valley are conducted from this point.) R. W. WOODWARD, junior agronomist, in charge.

Fruit and Vegetable Crops and Diseases.—Investigations of curly top, bacterial canker, streak, and other diseases of the tomato, including selections of tomato for resistance to curly top. H. L. BLOOD, agent, in charge.

Salt Lake City

United States Nematology Field Laboratory.—Room 477, Federal Building. Within walking distance from railroad station. May be reached by streetcar. Telephone, Wasatch 3980 (listed as U. S. Courthouse and Post Office).

Nematology.—General problems related to nematode diseases of plants in the Rocky Mountain region and California; sugar-beet, alfalfa, and clover nematode investigations. GERALD THORNE, associate nematologist, in charge.

United States Sugar Plant Field Laboratory.—Office and laboratory, 1810 South Main Street. May be reached by streetcar from railroad station. Telephone, Highland 4962.

Sugar Plant Investigations.—Breeding of curly-top-resistant sugar beets; physiology of sugar-beet seed production. Experimental work at this laboratory devoted chiefly to curly-top disease investigations, including agronomic investigations with sugar beets and sugar-beet seed production. F. V. OWEN, geneticist, in charge.

VERMONT

Middlebury

Morgan Horse Farm (cooperative investigations).—Two miles north of Middlebury (Rutland R. R.). Visitors should make arrangements in advance with E. B. KRANTZ, superintendent of the farm.

Forage Crops and Diseases.—Study of pasture mixtures, reclamation of old pastures and supplemental pastures; grazing experiments; and a pasture survey of New England (cooperation with Bureau of Animal Industry). E. B. KRANTZ, superintendent, in local charge.

VIRGINIA

Bowling Green

Caroline County Station, State Agricultural Experiment Station (cooperative investigations).—Three and one-half miles north of Bowling Green on road leading to Fredericksburg. May be reached by automobile. The railroad station is Milford (Richmond, Fredericksburg & Potomac R. R.), about 2¾ miles southwest of Bowling Green.

Tobacco and Plant Nutrition.—Dark air-cured tobacco investigations; cropping systems adapted to dark tobacco and the fertilizer requirements of the crop, including elements not ordinarily considered in fertilizer practice. W. W. Green, agent, in charge. Telephone, 27–F–2.

Diamond Springs

Virginia Truck Experiment Station (cooperative investigations).—May be reached by Beach electric train from Norfolk. Address, Norfolk, Box 88. Telephone, Juniper 28–F–2.

Fruit and Vegetable Crops and Diseases.—Potato investigations. H. H. Zimmerley, of the experiment station, in local charge.

Investigation of different methods of chemical treatment of seed potatoes used for seed purposes to control black rot. H. T. Cook, collaborator, in local charge.

Holland

Nansemond County Station, State Agricultural Experiment Station (cooperative investigations).—One-half mile northeast of Holland (Southern Ry.; bus line between Suffolk and Franklin).

Fruit and Vegetable Crops and Diseases.—Studies in the development of peanut seed stocks. E. T. Batten, collaborator, in local charge.

Soil Fertility Investigations.—Cotton soil and fertilizer studies. Directed from Washington, D. C.; local supervision by E. T. Batten, collaborator.

Onley

Eastern Shore Experiment Farm, Virginia Truck Experiment Station (cooperative investigations).—About 1½ miles south of Onley (Pennsylvania R. R.). May be reached by automobile.

Soil Fertility Investigations.—Fertilizer and fertilizer reaction studies with potatoes. Directed from Washington, D. C.; local supervision by W. O. Strong, superintendent of the station.

Rosslyn

Arlington Experiment Farm.—About 2 miles southwest of Washington, D. C. May be reached by automobile or Arlington Farm bus, which makes five trips daily from the Department of Agriculture in Washington. E. C. Butterfield, senior horticulturist and superintendent. Telephone, District 6350, branch 8521.

Arlington Experiment Farm.—Serves as a field laboratory of the Bureau of Plant Industry and other Bureaus of the Department of Agriculture. E. C. Butterfield, senior horticulturist and superintendent, in charge.

Cereal Crops and Diseases.—General agronomic and disease investigations on wheat, rye, barley, oats, rice, and sorghums. J. W. Taylor, agronomist, in charge.

Hybridization of wheat and its relatives, including genetics and cytology; physiological experiments on the influence of environmental factors on the development of the wheat plant. W. J. Sando, associate agronomist, in charge.

Investigations of the relative yielding power of the different varieties and strains of fall-sown oats, of varietal competition among the more distinct types of winter oats, of the development of hardier rust-resistant and smut-resistant strains by hybridization and subsequent selection, of variation in the Fulghum variety when sown in the fall, and of whether the so-called false wild oat in the Fulghum variety results from mutation or from natural crossing. T. R. Stanton, senior agronomist, and F. A. Coffman, associate agronomist, in charge.

Agronomic investigations of winter barley, including extensive varietal comparisons of domestic and introduced material, breeding and selection studies with special reference to winter hardiness and to utilization under southern conditions, studies on the effect of length of the light period, and the effect on germination and stand caused by seed treatments to control barley smuts. H. V. HARLAN, principal agronomist, and M. N. POPE, agronomist, in charge.

Breeding and genetic studies with rice, conducted in the greenhouses. J. W. JONES, senior agronomist, in charge.

Study of effect of length of day on domestic and introduced varieties of rice (in dark houses); growing introduced rice varieties in the greenhouse, under detention, to determine their freedom from disease and the effect of disease-control measures; growing perennial rices under controlled conditions in the greenhouse. C. E. CHAMBLISS, associate agronomist, in charge.

Investigations with rye, including varietal experiments with standard varieties and strains developed by selection; breeding experiments, especially for resistance to leaf rust; studies on the fertilization of the rye plant, with special reference to the problem of self-sterility; and genetic studies on resistance (or susceptibility) to leaf rust and on wheat-rye hybrids. J. W. TAYLOR, agronomist, in charge.

Breeding and genetic studies on corn, including the principles of corn breeding and the mode of inheritance of smut resistance, chlorophyll deficiencies, endosperm defects, and other heritable characters, and studies of the relation of certain characteristics to yield and quality of crop. M. T. JENKINS, principal agronomist, in charge.

Field and greenhouse studies on corn diseases, including root, stalk, and ear rots, bacterial wilt, etc. ————, senior pathologist, in charge; assisted by CHARLOTTE ELLIOTT, associate pathologist.

Laboratory, field, and greenhouse studies on the number and geographic distribution of physiologic forms of the covered, brown-loose, and black-loose smuts of barley, the loose smut of wheat, and the loose and covered smuts of oats; investigations on the inoculation, incubation, and infection phases of the barley covered smut fungus. V. F. TAPKE, pathologist, in charge.

Investigation on the life history and genetics of bunt and of kernel smuts of sorghum, with particular reference to the origin and pathogenicity of physiologic forms, isolating and testing physiologic forms produced through hybridization. H. A. RODENHISER, pathologist, in charge.

Investigations with covered smuts of barley in the greenhouse and field on methods of infection, on varietal resistance, and on smut control and the effect on yield. J. W. TAYLOR, agronomist, and V. F. TAPKE, pathologist, in charge.

Greenhouse and field studies of seed treatments for the control of seed-borne cereal diseases; studies of sorghum seed rot and seedling blight; and studies on the organism causing the nematode disease of wheat and rye. R. W. LEUKEL, associate pathologist, in charge.

Investigations in laboratory, greenhouse, and field on the nature, cause, and control of virus diseases of cereals and other plants. H. H. McKINNEY, senior pathologist, in charge; assisted by L. W. BOYLE, assistant pathologist.

Studies on the physiology of the wheat and barley plants, with special reference to factors affecting earliness and fundamental differences between winter and spring types. H. H. McKINNEY, senior pathologist, and W. J. SANDO, associate agronomist, in charge.

Studies on the effect of different forms of selenium in soils and nutrient solutions on the growth of wheat, barley, corn, etc.; on the absorption of selenium by these plants and their resulting toxicity to animals; on the inhibition of injury to plants and reduction in the amount of selenium absorbed in the presence of excess sulphur, including a study of the selenium-sulphur antagonism with special reference to reducing toxicity where selenium occurs naturally under field conditions. ANNIE M. H. KARRER, associate physiologist, in charge.

Maize-heredity studies; experiments with paper mulch. Directed from Washington, D. C.; G. N. COLLINS, principal botanist, in charge.

Drug and Related Plants.—Experimental culture of plants yielding drugs, insecticides, essential oils, vegetable oils, and related products. A. F. SIEVERS, senior biochemist, in charge.

Forage Crops and Diseases.—Lespedeza investigations; trials of different species and varieties of lespedeza; increase of seed and cultural studies of desirable species; and studies of other acid-tolerant legumes. A. J. PIETERS, principal agronomist, in charge.

Soybean and related legume investigations; tests of new introductions and varieties; development of improved varieties by selection and hybridization; and quantity production of seed of desirable strains. W. J. MORSE, senior agronomist, in charge.

Sweetclover, white-clover, and crimson-clover investigations; tests of new varieties; breeding strains adapted to special uses; cultural studies; and fertilizer tests. E. A. HOLLOWELL, senior agronomist, in charge.

Red clover, zigzag clover, and other clover investigations; generation studies on the resistance of red clover to anthracnose; breeding and selection studies with red clover and zigzag clover; preparation, mixture, and adaptation studies of clover species. E. A. HOLLOWELL, senior agronomist, in charge.

Vetch and crotalaria investigations; test of varieties and strains of hairy vetch, woollypod, and other species; tests of species and varieties of crotalaria for regional adaptation. R. MCKEE, senior agronomist, in charge.

Fine-turf investigations; trials of various grasses for suitability for putting greens; mixtures of grasses for use in fairways; fertilizer studies; and studies of the diseases of fine turf and their control (in cooperation with the Green Section, U. S. Golf Association, under supervision of John Montieth, Jr.). P. V. CARDON, principal agronomist, in charge.

Alfalfa investigations; physiological studies on the nature of injury; studies of the botanical characteristics of perennial Medicago species and their behavior under local conditions; the test includes some of the recent introductions. H. L. WESTOVER, senior agronomist, in charge.

Leafhopper injury investigations; studies of the nature of the injury caused by the potato leafhopper to forage legumes; the relation of rough-hairy pubescence in soybeans and red clover to resistance to this injury; chemical changes in leaves, stems, and roots of leafhopper yellowed alfalfa in relation to quality of hay and loss of stand; and tests of alfalfa varieties and selections for regional adaptation and resistance to leafhopper yellowing (cooperation with Division of Cereal and Forage Insects, Bureau of Entomology and Plant Quarantine). H. W. JOHNSON, associate pathologist, in charge.

Forage legume disease investigations; study of the permanence of strain resistance in red clover to southern anthracnose; and tests of effect of daily photoperiod and chilling of young seedlings upon length of vegetative period and development of virus diseases of sweetclover and crimson clover. H. W. JOHNSON, associate pathologist, in charge.

Forest Pathology.—Growing Asiatic chestnuts and determining their susceptibility to disease. Directed from Washington, D. C.

Fruit and Vegetable Crops and Diseases.—Cold-storage laboratory, operated in connection with studies of fruit and vegetable storage and transportation and the physiological response of fruits and vegetables to different storage conditions; investigations of storage and market diseases of fruits, vegetables, and flower bulbs, and effects of storage temperature and humidity conditions in relation thereto. D. F. FISHER, principal horticulturist, Washington, D. C., in charge.

Nut-culture investigations. H. L. CRANE, principal horticulturist, Beltsville, Md., in charge.

Grape investigations, including studies of varieties and varietal adaptability. J. R. MAGNESS, principal pomologist, Beltsville, Md., in charge.

Mycology and Disease Survey.—Investigations on mushroom diseases and culture, including the development of new and improved methods of mushroom culture as disease-preventive measures, the study of diseases attacking the crop, and development of control measures; studies and experiments in the growing of additional species under artificial conditions as substitute crops where diseases are prevalent. E. B. LAMBERT, associate pathologist, in charge.

Soil Fertility Investigations.—Laboratory and greenhouse studies in relation to soil fertility, including studies on soil and plant-nutrient solutions, on soil-acidity problems, and on the changes which plant-food materials undergo in soil; preparation of fertilizer mixtures for field experiments on prominent soil types and for cooperating agencies. OSWALD SCHREINER, principal biochemist, in charge.

Greenhouse control studies on problems encountered in field work and evaluation of new fertilizer materials. Directed by B. E. BROWN, senior biochemist; F. R. REID, assistant biochemist, in local charge.

Soil Microbiology.—Investigations on legume and other soil organisms, including greenhouse control work on commercial legume bacteria and cultures. Directed by L. T. LEONARD, bacteriologist; F. W. MARSH, assistant bacteriologist, in local charge.

Field and greenhouse experiments on relations existing between crops and the microflora of the soil; on the influence of manuring and other soil treatments upon the bacterial activities of the soil; on the decomposition of organic matter, including the study of specific soil micro-organisms. N. R. SMITH, senior bacteriologist, in charge.

Sugar Plant Investigations.—Experiments on transmission of diseases of sugarcane and sugar beets; sugarcane investigations, including growing sugarcane in quarantine previous to shipping to various field stations; growing of sugarcane seedlings from imported seed. E. W. BRANDES, principal pathologist, in charge.

Sugar-beet investigations; leaf-spot and root-rot control experiments. G. H. COONS, principal pathologist, in charge.

Tobacco and Plant Nutrition.—Physiological and biochemical studies of the tobacco plant, including laboratory, greenhouse, and field experiments; tobacco variety tests and breeding; effects on tobacco of liming the soil; tobacco breeding; investigations in breeding and growing tobacco of high nicotine content for use in insecticides. J. E. McMURTREY, Jr., senior physiologist, in charge.

Diseases of tobacco and their control. E. E. CLAYTON, senior pathologist, in charge.

Effect of light and length of day on growth and reproduction of plants. H. A. ALLARD, senior physiologist, in charge.

The following bureaus of the Department of Agriculture also conduct work at the Arlington Experiment Farm: Agricultural Engineering, Chemistry and Soils, Entomology and Plant Quarantine, and Public Roads, and the Food and Drug Administration.

WASHINGTON

Bellingham

United States Bellingham Bulb Station.—Three miles north of Bellingham (Great Northern and Northern Pacific Rys., and Chicago, Milwaukee, St. Paul & Pacific R. R.), adjoining the city limits. Bus service every hour from Union Station; streetcar and bus service within 1 mile of the station.

Fruit and Vegetable Crops and Diseases.—Bulb-culture investigations, particularly daffodils, tulips, hyacinths, lilies, iris, crocus, galanthus, and bulbs of other genera, including all features of culture and handling. Directed by S. L. EMSWELLER, principal horticulturist, Beltsville, Md.; local supervision by B. L. PETERS, senior scientific aide.

Prosser

Irrigation Branch Station, State Agricultural Experiment Station (cooperative investigations).—Five miles northeast of post office at Prosser (Northern Pacific Ry.). Visitors will be met at Prosser by automobile from the station. H. P. SINGLETON, superintendent. Telephone, 3606.

Drug and Related Plants.—Field tests with special Russian safflower as an oilseed crop. Directed from Washington, D. C.; local supervision by H. P. SINGLETON, superintendent of the station.

Western Irrigation Agriculture.—Investigations on rate of penetration of irrigation water, the water-holding capacity of the soil, and the movement of soluble salts in the soil as influenced by various methods of irrigation and as affecting field crops. C. A. LARSON, agent, in charge.

Pullman

State Agricultural Experiment Station (cooperative investigations).—About 1¼ miles from Northern Pacific Railway and Oregon-Washington Railroad & Navigation stations. May be reached by bus. Pullman may also be reached by bus from Spokane.

Cereal Crops and Diseases.—Agronomic and disease investigations of wheat, including improvement, varietal testing, and genetic studies, especially for quality and resistance to bunt. O. A. VOGEL, assistant agronomist, in charge. Telephone, 365–W.

Investigations of bunt, including number and distribution of physiologic forms, and methods of control. C. S. HOLTON, associate pathologist, in charge. Telephone, 314–W.

Forage Crops and Diseases.—Breeding and improvement work with grasses, including research in agronomy and genetics. D. C. SMITH, agent, in charge.

Sumner

United States Nematology Field Laboratory.—In United States Entomological Laboratory, on grounds of Pierce County Farm, about 2 miles southeast of Sumner (Northern Pacific and Great Northern Rys., Union Pacific, and Chicago, Milwaukee, St. Paul & Pacific R. Rs.; also bus from Seattle and Tacoma). Visitors will be met by automobile. Telephone residence of W. D. COURTNEY.

Nematology.—General problems related to plant diseases caused by nematodes in Washington and Oregon; investigations on nematode diseases of ornamental bulbs, especially narcissus; transfer studies as related to crop rotation; life-history studies of the bulb nematode. W. D. COURTNEY, assistant nematologist, in charge.

Wenatchee

United States Horticultural Field Laboratory.—In County Garage Building, Washington and King Streets, one-half mile from Great Northern Railway station. Motorcoach service also from Seattle and Spokane. Telephone, 3495.

Fruit and Vegetable Crops and Diseases.—Investigations of factors affecting fruit production; studies of diseases of fruit trees and developing fruits. C. P. HARLEY, associate physiologist, in charge.

Investigations in fruit and vegetable handling, transportation, and storage, including studies on spray-residue removal. EDWIN SMITH, senior horticulturist, in charge.

Yakima

United States Horticultural Field Laboratory.—Rooms 314–A and 315, Post Office Building. Yakima is on Northern Pacific Ry., and Union Pacific System; also Washington Motor Coach line. Telephone, 9540.

Fruit and Vegetable Crops and Diseases.—Investigations in fruit and vegetable handling and storage, including studies of spray residue removal. Directed by EDWIN SMITH, senior horticulturist, Wenatchee; A. L. RYALL, assistant pomologist, in local charge.

WEST VIRGINIA

Lakin

Lakin Experiment Farm, State Agricultural Experiment Station (cooperative investigations).—Within walking distance of the Baltimore & Ohio Railroad station.

Tobacco and Plant Nutrition.—Burley tobacco investigations, including development of improved types which are most productive and resistant to root rot, and improvement of methods of curing. T. C. McILVAINE, agent, in charge.

Morgantown

State Agricultural Experiment Station (cooperative investigations).—Within walking distance of Baltimore & Ohio Railroad station.

Cereal Crops and Diseases.—Breeding and genetic investigations with corn. C. R. BURNHAM, agent, in charge.

Forage Crops and Diseases.—Fertilizer treatments on old pastures, with analyses of herbage; studies of plant sequence. R. R. ROBINSON, assistant agronomist, in charge.

Reedsville

Experimental Plantings of Pyrethrum (cooperative investigations).—At Reedsville Experimental Community, Inc., 12 miles east of Morgantown. Visitors should telephone Reedsville Experimental Community office.

Drug and Related Plants.—Experiments with pyrethrum as an insecticide plant to determine the possibilities of this crop on the homesteads. Directed from Washington, D. C.; local supervision by E. N. McCubbin, collaborator.

Wardensville

Reymann Memorial Farms, State Agricultural Experiment Station (cooperative investigations.)—One and one-half miles southwest of Wardensville. Winchester and Wardensville connection at Winchester, Va., with Baltimore & Ohio Railroad. Visitors should communicate with L. F. Sutton, superintendent, at Winchester, Va., or with R. H. Garber, head of the agronomy department, Morgantown, W. Va.

Forage Crops and Diseases.—Grazing and mowing experiments designed to establish the relationship between the two systems of work. R. R. Robinson, assistant agronomist, Morgantown, in charge.

WISCONSIN

Madison

State Agricultural Experiment Station (cooperative investigations).—About 2½ miles west of Chicago & North Western Railway station. Take cars marked "Wingra Park" or "Monroe Street", which go out University Avenue within one block of Horticultural and new Agronomy Buildings. Telephone, Badger 580.

Cereal Crops and Diseases.—Investigations of pathologic and physiologic phases of wheat and barley scab and related rot diseases of corn; studies on control of Helminthosporium diseases of barley; studies on malting and brewing problems of barley; breeding investigations with wheat. J. G. Dickson, agent, in charge.

Cotton and Other Fiber Crops and Diseases.—Experiments in cultivation of varieties of hemp at the Experiment Station Farm; larger comparative tests on commercial hemp farms in eastern Wisconsin. A. H. Wright, agent, in charge. In Agronomy Building.

Forage Crops and Diseases.—Investigations of forage-crop diseases and methods for their control; laboratory, greenhouse, and field studies of alfalfa wilt, and other forage-crop diseases of outstanding importance; breeding of disease-resistant alfalfa and red clover, and studies on sweetclover poisoning. F. R. Jones, senior pathologist, in charge.

Study of technique useful in determination of plant population in pastures, effect of environmental factors on association of grasses and legumes, and development of improved strains of pasture plants by approved breeding methods. F. W. Tinney, assistant agronomist, in charge.

Fruit and Vegetable Crops and Diseases.—Investigations of onion and cabbage diseases and breeding of yellows-resistant cabbage. J. C. Walker, agent, in charge. In Horticultural Building.

Potato-breeding investigations. J. G. Milward, collaborator, in charge.

Tobacco and Plant Nutrition.—Cigar-binder investigations, including laboratory and field investigations in diseases of tobacco and their control; investigations in breeding and growing tobacco of high nicotine content for use in insecticides. James Johnson, agent, in charge. In Horticultural Building.

United States Forest Pathology Field Laboratory.—Located at Forest Products Laboratory, 701 Highland Avenue. Telephone, Fairchild 1180.

Forest Pathology.—Investigations of diseases of structural timber and forest products (cooperation with U. S. Forest Products Laboratory and University of Wisconsin). C. AUDREY RICHARDS, pathologist, in charge.

Wisconsin Rapids

Cranberry Laboratory, State Department of Agriculture (cooperative investigations).—Room 14, Wood Block. Wisconsin Rapids is on the Chicago, Milwaukee, St. Paul & Pacific and Green Bay & Western Railroads and Chicago & North Western Railway. Visitors will be met by automobile. Telephone, 1311 (listed as Wisconsin Department of Agriculture, Cranberry Laboratory).

Fruit and Vegetable Crops and Diseases.—Investigations of cranberry diseases. H. F. BAIN, senior pathologist, in charge. (Summer months only.)

WYOMING

Archer

Archer Field Station, State Agricultural Experiment Station (cooperative investigations).—One mile southeast of Archer (Union Pacific R. R.), about 10 miles east of Cheyenne, and one-half mile south of Lincoln Highway. Address, Box 298, Cheyenne. May be reached by automobile from Cheyenne, or telephone A. L. NELSON from that point regarding transportation. Telephone, long distance (listed as Archer Field Station Experiment Farm).

Dry Land Agriculture.—Dry-land crop rotations and production (cooperation with Wyoming Agricultural Experiment Station). A. L. NELSON, associate agronomist and superintendent, in charge.

Cheyenne

Cheyenne Horticultural Field Station.—Six and one-half miles northwest of Cheyenne. No bus transportation beyond Fort Francis E. Warren, which is 2½ miles from the station. May be reached by automobile from Cheyenne, or transportation arrangements may be made by communicating with the station office. Telephone, 7211. Post office address, Box 1250, Cheyenne.

Forage Crops and Diseases.—Physiological research with forage plants, particularly native and introduced species of grasses adapted to the Great Plains. H. M. BENEDICT, agent, in charge.

Fruit and Vegetable Crops and Diseases.—Species and variety testing, breeding, and cultural experiments with fruits, vegetables, ornamentals, and shelterbelt plants under both dry-land and irrigated conditions; experimental shelterbelt and horticultural crop tests with cooperators in central Great Plains area. A. C. HILDRETH, agent and superintendent, in charge.

Sheridan

United States Dry Land Field Station.—About 7 miles northeast of Sheridan (Chicago, Burlington & Quincy R. R.). May be reached by automobile, or telephone R. S. TOWLE regarding transportation. Telephone, 8505.

Dry Land Agriculture.—Dry-land crop rotations and production; soil fertility investigations; shelterbelt investigations; and grazing and feeding investigations with sheep and swine (cooperation with University of Wyoming). R. S. TOWLE, associate agronomist and superintendent, in charge.

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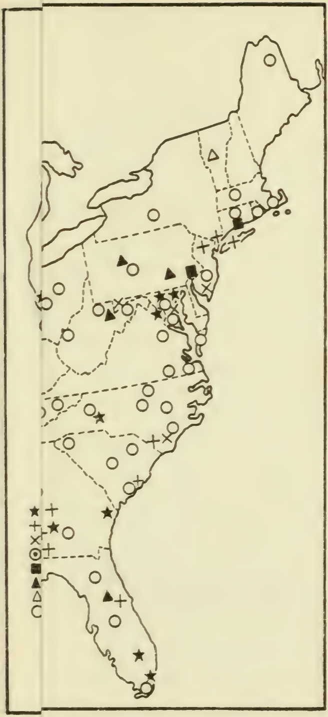

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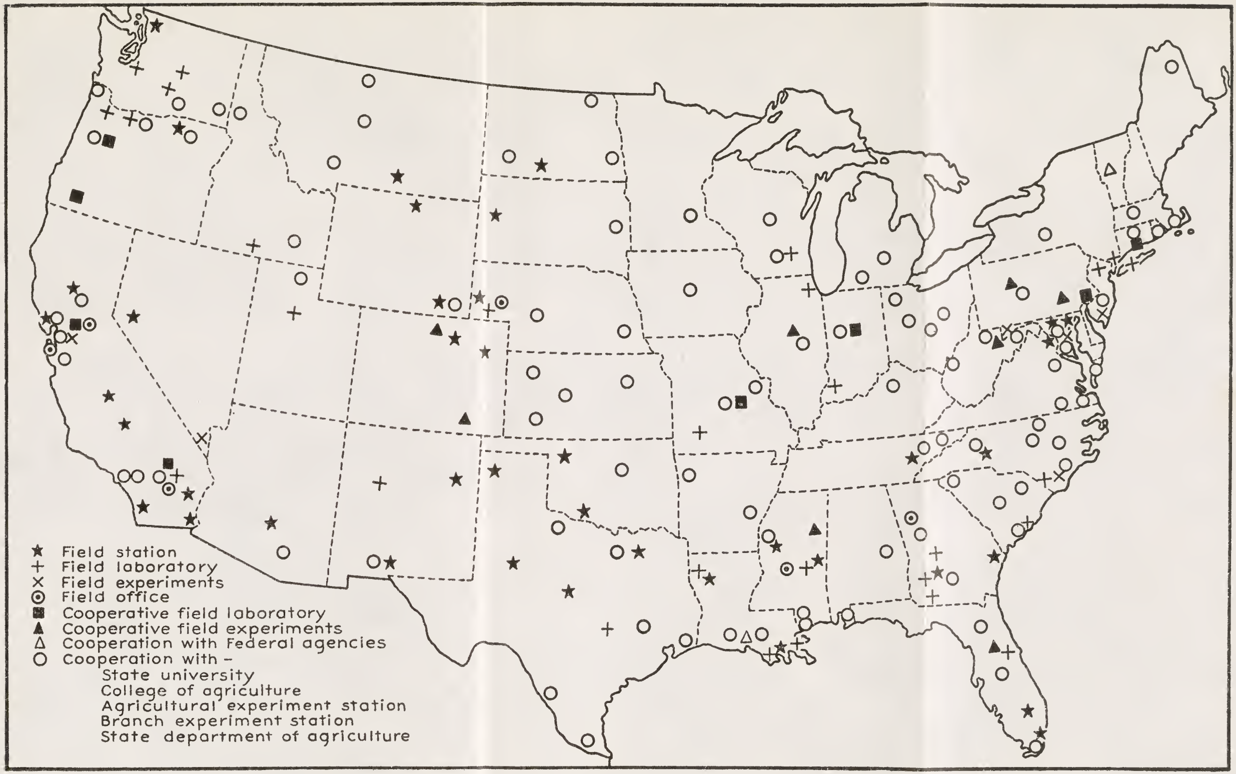
★ Field station
+ Field laboratory
× Field experiments
⊙ Field office
■ Cooperative field laboratory
▲ Cooperative field experiments
△ Cooperation with Federal agencies
○ Cooperation with -
State university
College of agriculture
Agricultural experiment station
Branch experiment station
State department of agriculture

FIGURE 1.—Outline map of the United States showing location and character of the field activities of the Bureau of Plant Industry.

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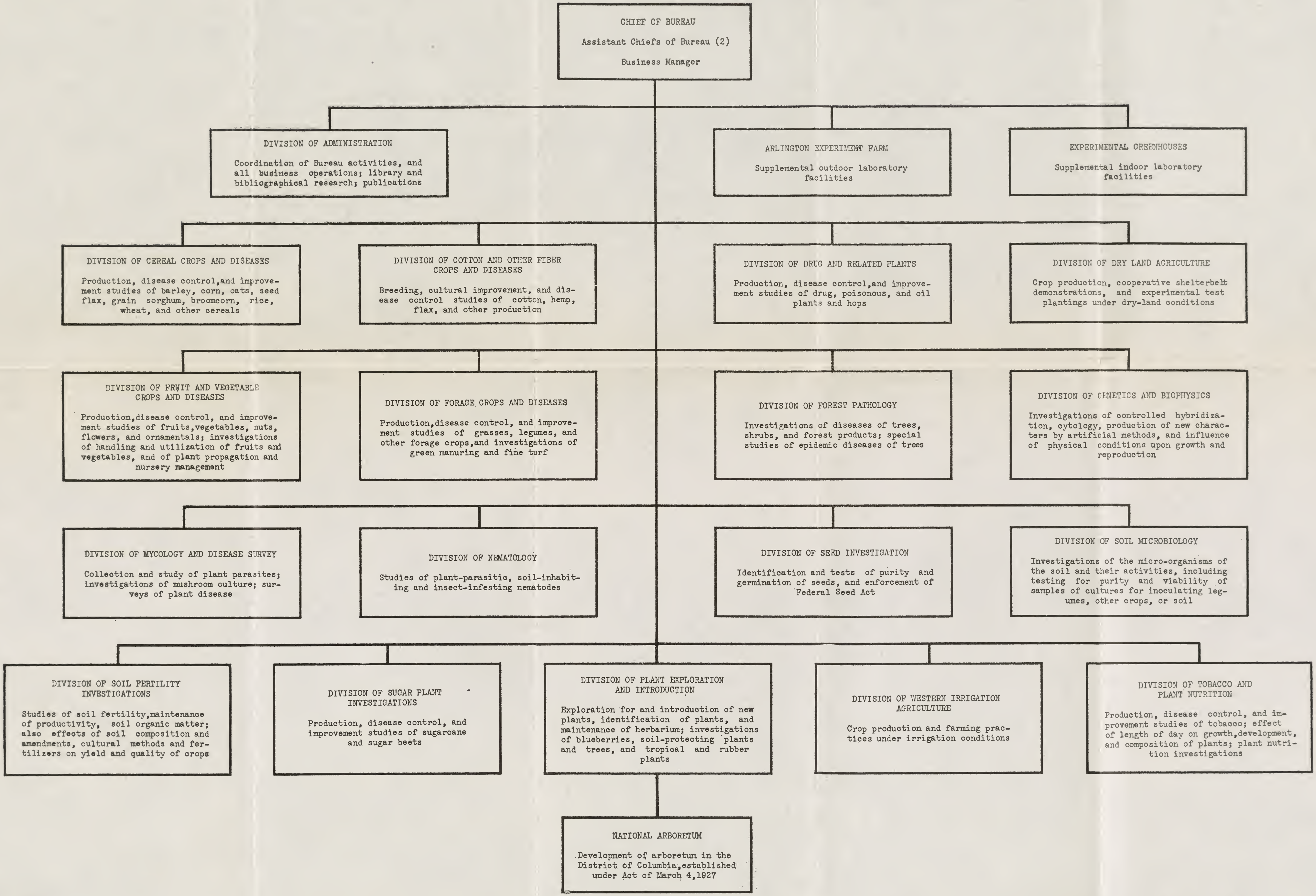
DEPARTMENT OF AGRICULTURE
BUREAU OF PLANT INDUSTRY



CHIEF OF BUREAU
Assistant Chiefs of Bureau (2)
Business Manager

DIVISION OF ADMINISTRATION

Coordination of Bureau activities, and all business operations; library and bibliographical research; publications

ARLINGTON EXPERIMENT FARM

Supplemental outdoor laboratory facilities

EXPERIMENTAL GREENHOUSES

Supplemental indoor laboratory facilities

DIVISION OF CEREAL CROPS AND DISEASES

Production, disease control, and improvement studies of barley, corn, oats, seed flax, grain sorghum, broomcorn, rice, wheat, and other cereals

DIVISION OF COTTON AND OTHER FIBER CROPS AND DISEASES

Breeding, cultural improvement, and disease control studies of cotton, hemp, flax, and other production

DIVISION OF DRUG AND RELATED PLANTS

Production, disease control, and improvement studies of drug, poisonous, and oil plants and hops

DIVISION OF DRY LAND AGRICULTURE

Crop production, cooperative shelterbelt demonstrations, and experimental test plantings under dry-land conditions

DIVISION OF FRUIT AND VEGETABLE CROPS AND DISEASES

Production, disease control, and improvement studies of fruits, vegetables, nuts, flowers, and ornamentals; investigations of handling and utilization of fruits and vegetables, and of plant propagation and nursery management

DIVISION OF FORAGE CROPS AND DISEASES

Production, disease control, and improvement studies of grasses, legumes, and other forage crops, and investigations of green manuring and fine turf

DIVISION OF FOREST PATHOLOGY

Investigations of diseases of trees, shrubs, and forest products; special studies of epidemic diseases of trees

DIVISION OF GENETICS AND BIOPHYSICS

Investigations of controlled hybridization, cytology, production of new characters by artificial methods, and influence of physical conditions upon growth and reproduction

DIVISION OF MYCOLOGY AND DISEASE SURVEY

Collection and study of plant parasites; investigations of mushroom culture; surveys of plant disease

DIVISION OF NEMATOLOGY

Studies of plant-parasitic, soil-inhabiting and insect-infesting nematodes

DIVISION OF SEED INVESTIGATION

Identification and tests of purity and germination of seeds, and enforcement of Federal Seed Act

DIVISION OF SOIL MICROBIOLOGY

Investigations of the micro-organisms of the soil and their activities, including testing for purity and viability of samples of cultures for inoculating legumes, other crops, or soil

DIVISION OF SOIL FERTILITY INVESTIGATIONS

Studies of soil fertility, maintenance of productivity, soil organic matter; also effects of soil composition and amendments, cultural methods and fertilizers on yield and quality of crops

DIVISION OF SUGAR PLANT INVESTIGATIONS

Production, disease control, and improvement studies of sugarcane and sugar beets

DIVISION OF PLANT EXPLORATION AND INTRODUCTION

Exploration for and introduction of new plants, identification of plants, and maintenance of herbarium; investigations of blueberries, soil-protecting plants and trees, and tropical and rubber plants

DIVISION OF WESTERN IRRIGATION AGRICULTURE

Crop production and farming practices under irrigation conditions

DIVISION OF TOBACCO AND PLANT NUTRITION

Production, disease control, and improvement studies of tobacco; effect of length of day on growth, development, and composition of plants; plant nutrition investigations

NATIONAL ARBORETUM

Development of arboretum in the District of Columbia, established under Act of March 4, 1927

FIGURE 2.—Chart showing organization of the Bureau of Plant Industry.